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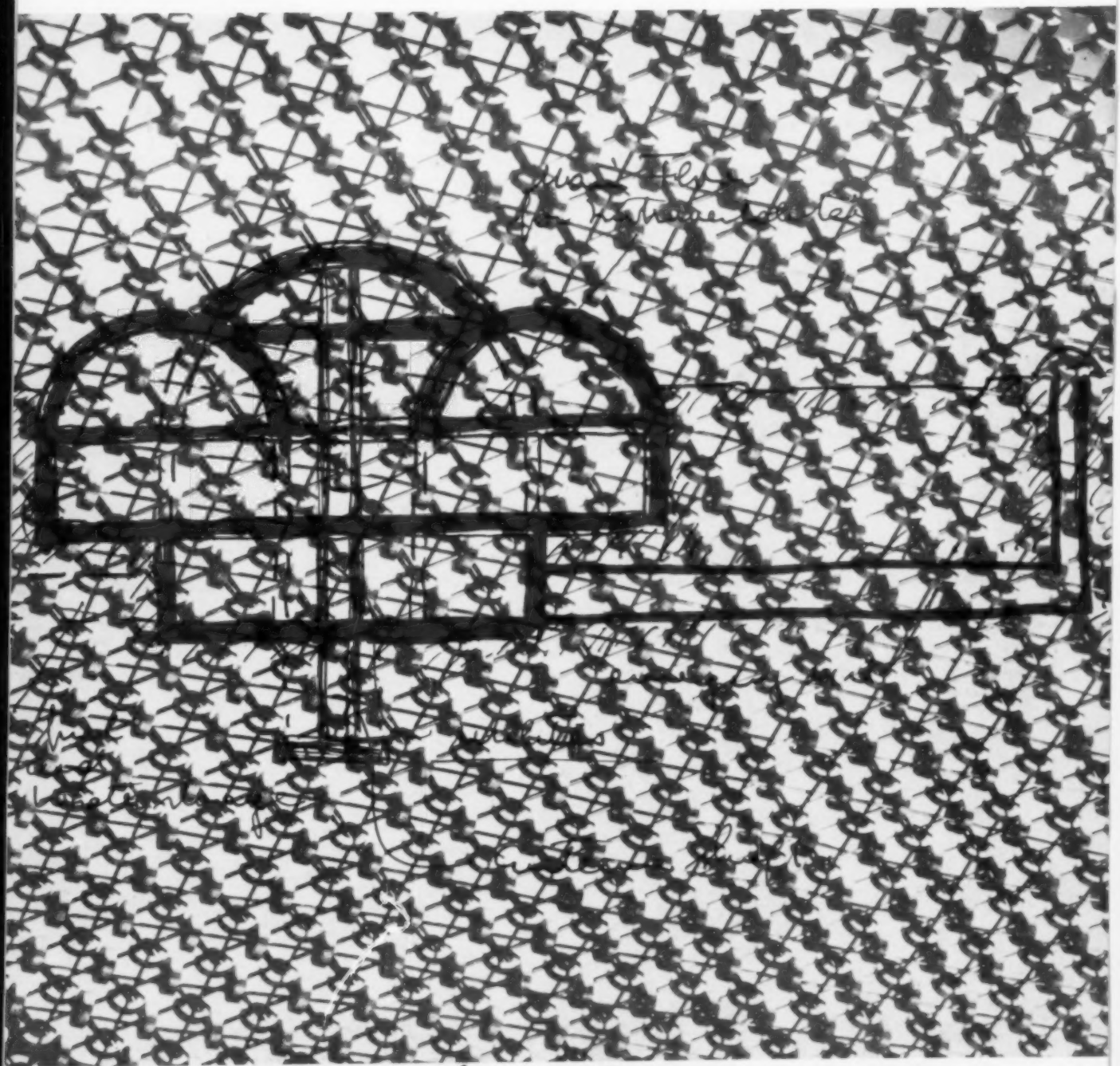

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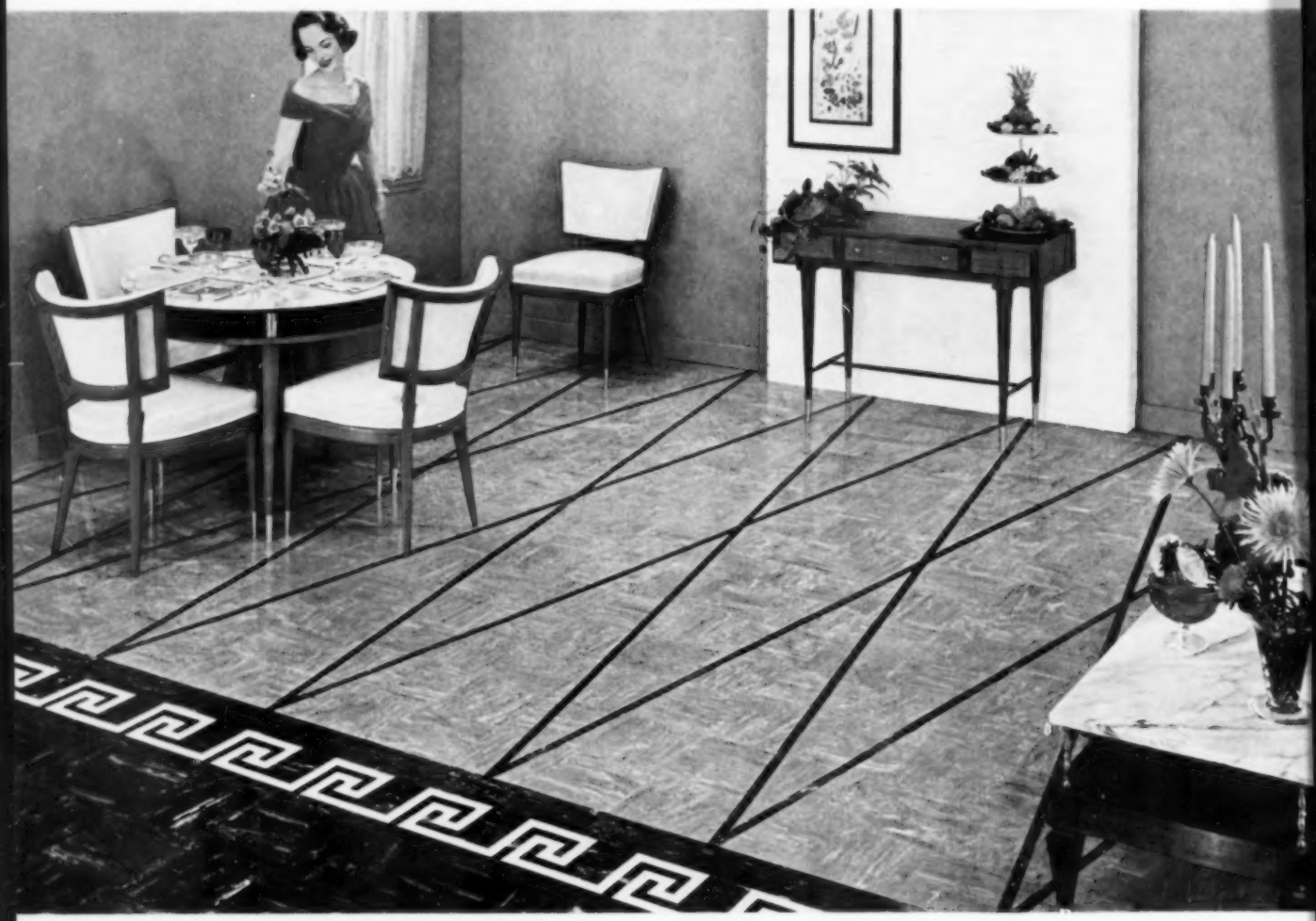

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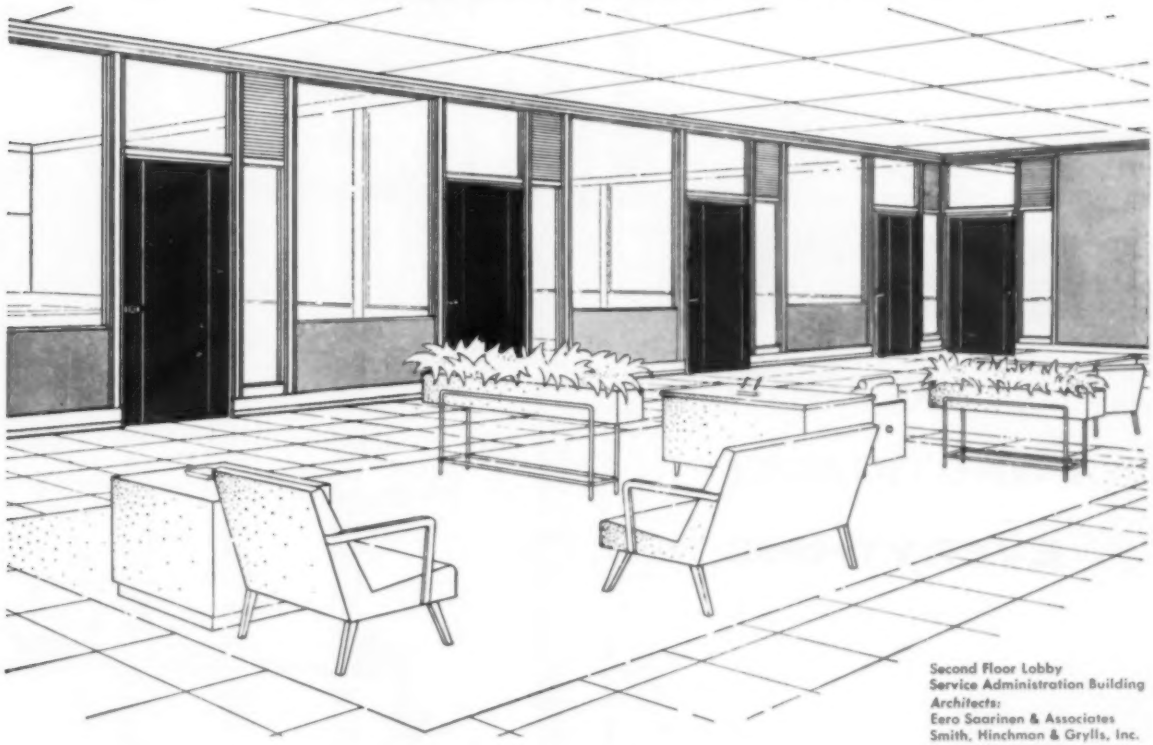

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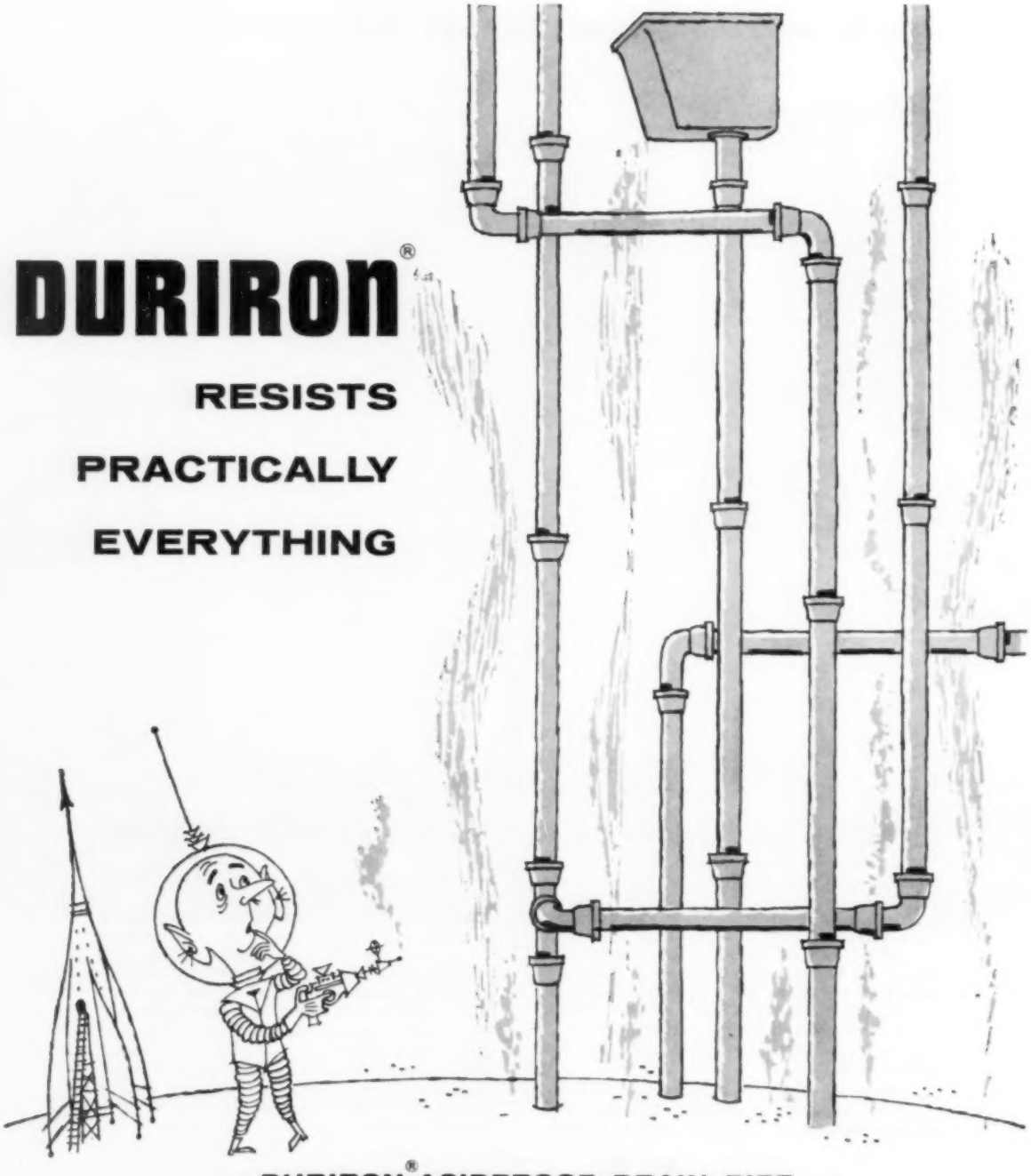

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Volume XXXVII, No. 5

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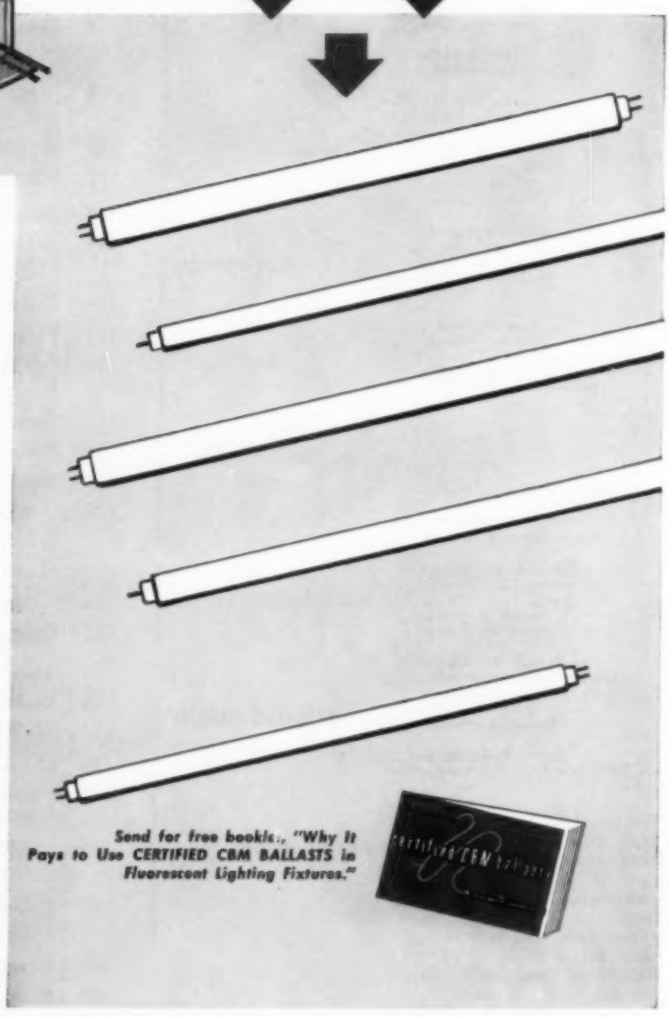

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It's the Law *by Bernard Tomson*

P/A Office Practice *article opening the question of Arbitration of Disputes between Owner and Contractor.*

Who should arbitrate disputes between Owner and Contractor and what procedure should be followed in the conduct of such arbitration? Is the Architect the most qualified and logical person to determine and solve such disputes? Would it be in the interest of all to expand the Architect's function as arbitrator and make his decision final?

Or, if a standard procedure for arbitration is provided in the contract between Owner and Contractor under which some "outsider" determines issues in dispute, should that procedure mandatorily require the utilization of an arbitrator or an arbitration tribunal that will have the proper orientation, qualification, and lack of bias?

These are questions which need consideration when reviewing the adequacy of the provisions on arbitration of the Form Contracts of the American Institute of Architects.

Under the Owner-Contractor agreements issued by the American Institute of Architects, the role of Architect as arbitrator is severely limited. The American Institute of Architects, Short Form, for small construction contracts provides that "any disagreement arising out of this contract or from the breach thereof shall be submitted to arbitration" and "the arbitration shall be held under the standard form of arbitration procedure of the American Institute of Architects or under the rules of the American Arbitration Association." This means all decisions of the Architect are subject to further arbitration.

The "General Conditions" of the Contract of the American Institute of Architects provide that "the Architect's decision relating to *artistic effect* shall be final, if within the terms of the contract documents" and that *all other decisions* of the Architect are subject to arbitration under the standard procedure of the American Institute of Architects.

The Courts have held that the "General Conditions" of the Contract do not permit architects to determine questions of law, nor to determine whether the contract has breached. No factual decision is final, except relating to artistic effect, and even in that respect the "General Conditions" are ambiguous as to when this decision would be final. The "General Conditions" make no provision in the event the Architect is disabled, dies, or is replaced by the Owner. (*See* IT'S THE LAW, June 1954 P/A *and* August 1954 P/A.)

The Architect is certainly in the most knowledgeable position to determine questions of the extent of the Contractor's obligations under the contract; whether work performed constitutes an extra; if, when, and how much the Contractor should be paid; whether the Contractor is properly paying the subcontractors, etc. If the Architect's decisions relating to performance under the Contract were final, disputes would be quickly resolved and the Architect would have an effective and vital weapon to assist him in his function as supervisor of the project and of the Contractor.

If it is considered advisable to exclude certain disputes or disagreements from the decision of the Architect, and to submit them to arbitration by some other person or body, then the procedure for such arbitration should be realistic and effective. The AIA "General Conditions" provide for arbitration under the standard procedure of the American Institute of Architects. This is, in fact, merely an agreement to agree.

The standard arbitration procedure of the American Institute of Architects provides that the parties to a dispute "agree upon and jointly designate either a single arbitrator or three arbitrators." The procedure further provides that, "if the parties fail to agree and designate the Arbitrator or Arbitrators . . . The American Arbitration Association shall designate one or three arbitrators at its discretion, and the arbitration shall be administered by the Association." No special qualifications or standards are required for the arbitrator or the members of an arbitration tribunal.

An agreement to agree is without legal effect and is substantially meaningless. Under the AIA procedure, if there is no agreement, the entire arbitration is "dumped in the lap" of the American Arbitration Association. In this event, the standard procedure is not that of AIA, but of the American Arbitration Association.

Is the American Arbitration Association the best and most appropriate organization to determine disputes in the construction industry? Are the arbitration panels of that association made up of qualified members for the consideration and determination of questions which are peculiar to this industry? Do any of the members of the arbitration panels of the American Arbitration Association have a leaning or bias which would favor the Contractor over the Owner, or vice versa? Would it not be a better procedure for the American Institute of Architects to provide arbitration panels consisting of architects from which to select the arbitrator or arbitration tribunal? These are the questions which should be considered by the profession in determining whether the standard arbitration procedure of the American Institute of Architects requires revision.

Next month: discussion of suggested revisions of AIA Contract *provisions and standard contract procedure.*

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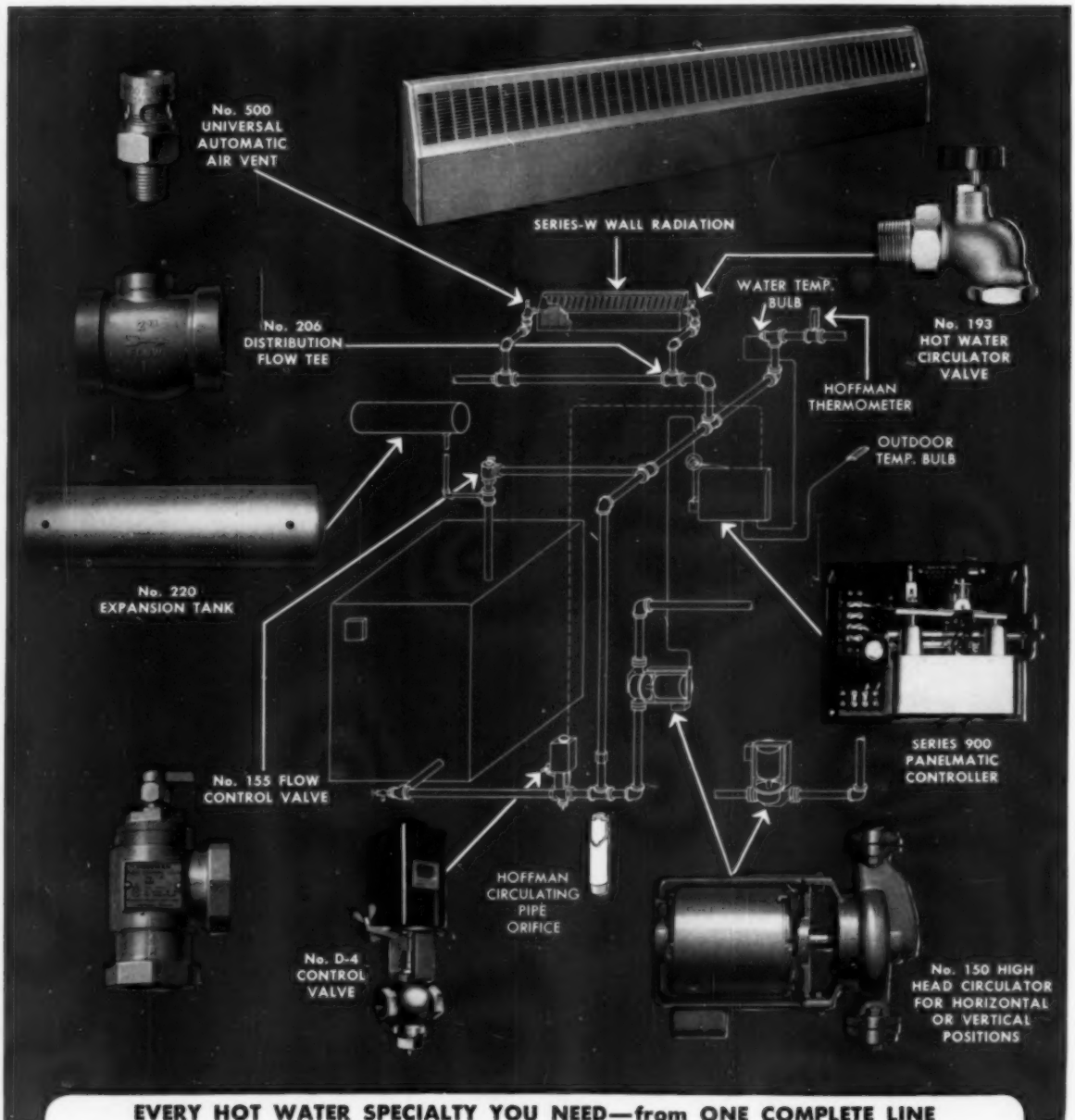
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Mechanical Engineering Critique *by William J. McGuinness*

P/A Office Practice *column on mechanical and electrical design in architecture is devoted this month to the subject, High-Voltage Electric Distribution in New York City's new Coliseum Building.*

In planning this office and exhibition building, Leon & Lionel Levy, Architects, and Guy B. Panero Engineers were faced with a high electrical demand, the need for great flexibility in the exhibit space, and a future increase in demand which was difficult to estimate. The need for a new kind of system at once economical and highly adequate was apparent. Over the years, great savings in the cost of conductors by use of the principle of high-voltage distribution has been well known. By extending this kind of system into the building, transforming to low voltage just before the point of power use, $1,500,000 was saved in electrical installation cost at the Coliseum.

Though this is one of the largest electrical installations of its kind, it is only the third or fourth in New York City. Recent approval by the City, the availability of power, and the perfecting of proper equipment made the installation possible.

The selection of a 480/277-v system instead of 120/208-v made it possible for a conductor of given cross section to transmit twice the power for twice the distance at the same allowable voltage drop (required by the New York City Electrical Code). The saving in metal is obvious, especially in the Coliseum where distribution distances were great (the longest is 776 ft). Aluminum was chosen for conductors in preference to copper; although its unit resistance is greater than copper it is cheaper and lighter in weight. The latter quality further aided in effecting a reduced labor cost for erection.

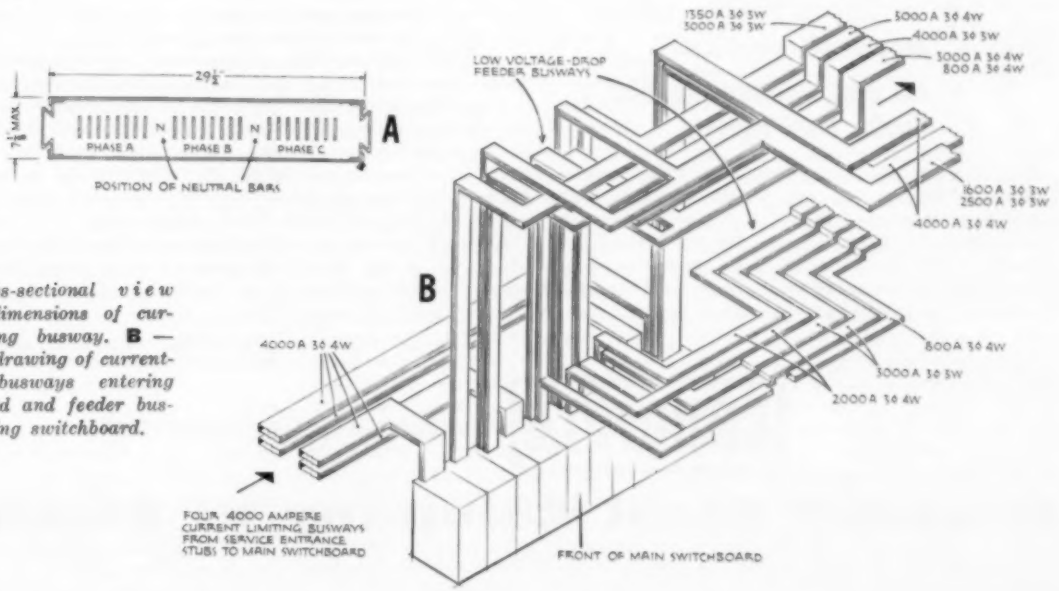
The system really has a "new look." Instead of insulated wires and cables within metal conduit we find a series of ¼" x 2" aluminum bus bars in groups held rigidly in place inside a ventilated aluminum housing (*illustrated below*). The three phases are represented by three separate groups, the neutral bus bars being adjacent and between the phases. There are two types of busways. Between the service entrance and the main switchboard there is a high-reactance, current-limiting busway. In order to reduce the level of short-circuit duty at the entrance studs a specific length of this busway is required. In the case of the Coliseum this length was 42 ft between the service entrance and the main switchboard. Not much difference in size is seen in the main switchboard of this system and that of low-voltage distribution. (This one is 40 ft long.) The busways leaving the main switchboard are known as low-voltage-drop feeder busways and, although they have radically different performance characteristics than the high-reactance busways, they are quite similar in appearance. In general they are suspended close to the ceiling and, in conformance with a New York City regulation, are provided with special protection for a height of six ft where they rise above a floor.

Feeder distribution is quite interesting. Air conditioning, elevators, and other building services are served directly from the main switchboard. The office building has two service closets on each floor. In these there are transformers (near the ceiling) and circuit controls. Power losses are further minimized by the use of fluorescent lights which operate at 277 v. By means of an underfloor duct pattern, convenience outlets can be made available to supply 120 v at any point in the floor area.

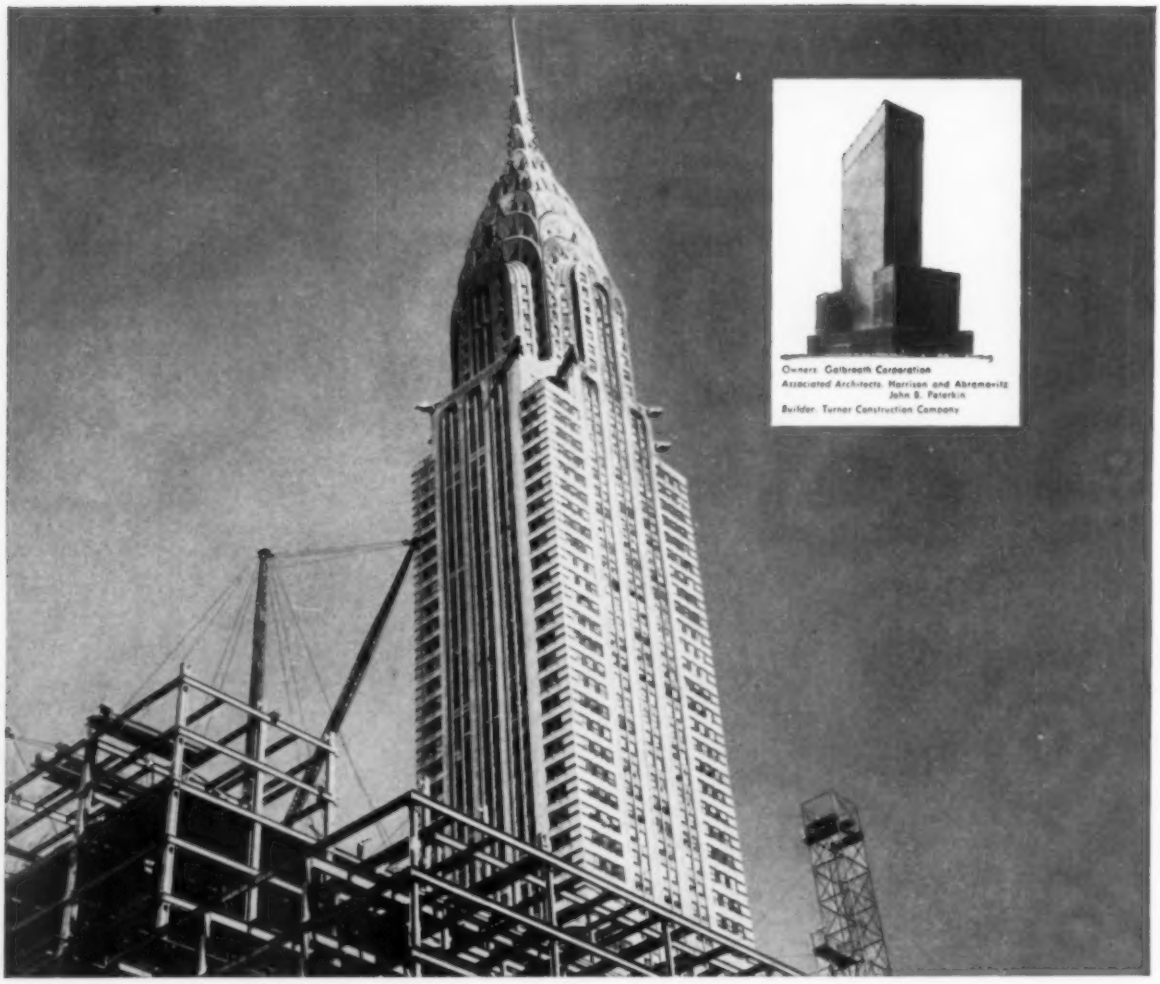
In the display area the high voltage is carried at the ceiling, transformed there, and down-fed at columns to supply 120/208-v, 3-phase, 4-wire current for exhibits. The lessee of space for demonstration can plug into this service and install his own temporary branch wiring to the capacity of the circuit provided him.

Guy Panero Engineers point out that all requirements of the New York City and National Electric Codes are met in this new system. To those interested in better electrical planning it represents a great stride forward toward safety, economy, flexibility, and reserve power.

General Contractor for the Coliseum is Walsh-Fuller-Slattery; the Electrical Contractor is Jackson-Livingston. Electrical equipment was supplied by General Electric—Company; power to the building is furnished by Consolidated Edison from six 2000-kva transformers.



A — *Cross-sectional view showing dimensions of current-limiting busway.* **B** — *Isometric drawing of current-limiting busways entering switchboard and feeder busways leaving switchboard.*



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Architectural Education—A Prediction by Ernest Wright

When the column* Out of School *which had been conducted by Carl Feiss was discontinued as a regular P/A feature, the Editors promised that occasional discussions of architectural education would appear. In this article, Ernest Wright, Assistant Professor in the Department of Architecture at Rensselaer Polytechnic Institute at Troy, New York, makes some specific suggestions for improvement of common teaching methods.

We may expect a great deal of change in the methods of architectural education in the next 10 or 20 years. Until now there has been very little change in *methods* of teaching, although *content* has changed radically. The schools have been contorted by a revolution in the kind of architecture taught, while the technique of training has remained essentially the same as in the Beaux Arts period. Perhaps necessarily, as the one change has been more urgent, and the flexibility of institutions limited. I predict change along two lines.

First, I think we are going to see a great increase in three-dimensional work by students with the real materials of architecture; today and in the past, students have studied architecture primarily by means of two-dimensional design drawings, and the process of design is bitten off before what every mature designer knows is the most meaningful stage in the design process: realization of the design by actual fabrication. In engineering education, contact between students and the real materials of their field is commonplace. The student chemical engineer works with chemicals; the student aeronautical engineer works with aircraft engines and wind tunnels. Why this is not done in architectural education is a most pertinent question.

Of course, there has been a trend in this direction for some time. Black Mountain College and Taliesin West are among examples that come to mind. At these schools a continuous building program with students designing and building has been the main vehicle for teaching. During the two years that I was at the Harvard School of Design it often seemed to me that the strongest thing there was the great amount of construction work done by students on the side, in addition to much model building, exhibit work, etc., within the school. While I was there, at least three students built their own houses with the help of other students, and a group of second-year students remodeled a derelict building into a co-operative apartment in which many more students lived and shared in the remodeling work. Few students lived in quarters that they did not at least redecorate. I think one of the main characteristics of architectural training in the future will be the organization of such work into the curriculum.

Cranbrook and the Illinois Institute of Design are two more schools where students do a great deal of work in the round, within the school in shop courses. The growth of basic design courses all over the country indicates a trend.

At Rensselaer Polytechnic Institute a program of shop work, now in the development stage, aims at training similar to that in basic-design courses, but of a more specifically architectural nature. Students design and make articles which are technically simple and at the same time give a wide choice of form, such as tool handles, children's beach shovels, and simple furniture. In all cases, the student works with materials which he will use later in architectural practice.

Also at RPI there has been discussion of the possibility of a dirt-floor building for full-scale construction work such as experimental structural spans, prefab panels, etc. This amounts to the institutionalizing of what Buckminster Fuller does as an isolated project. It is the sort of thing that I think will soon become standard in architectural schools. With such facilities available, a graduate research program could permit students to work on real problems.

Why shouldn't an architectural school have a summer work project, something like surveying camps in civil engineering training, where students would build a house—design, working drawings, specifications having been worked out in the preceding spring term? It would be inexpensive teaching, for student labor would be converted into real value. Objections of builders and unions could easily be met, for units thus created in competition with private industry would be so few as to be negligible, and no difficulty would be experienced in explaining to these groups the desirability of such training; they know what's wrong with architects.

Again, why shouldn't an architectural school have a small office where limited architectural service would be provided by students and faculty members working together? Beside the obvious advantage of direct experience, such a device would give the student contact with his instructor as a working architect, in contrast with the present system where the student is in contact with his instructor as a talking architectural critic. At least one law school in the country maintains an analagous service where students provide legal advice to real clients at a reduced fee.

In connection with the above points, I have been greatly stimulated by some correspondence with Claude Stoller, Instructor in Architectural Design and Basic Design at Washington University, St. Louis. Stoller has been taking his first-year students in basic design out on what he calls "environment projects," in which the students experience and study spaces on the spot. These are miscellaneous spaces: a portion of the campus, a dead-end street in an old section of St. Louis, a railroad station, etc. The students use sketch pad, camera, "rubbings," and verbal description to record and sharpen their perceptions. In his on-the-spot discussions with his students, Stoller is able to get at aspects of architecture which are hard to deal with in the drafting room. The course reaches directly the most basic attributes of the architect: sensitivity to surroundings and the capacity to observe.

The importance, for the student, of three-dimensional realization of his design can hardly be overestimated. The thoughtful criticism of the work after the struggle of accomplishment—this criticism immeasurably extended by the presence and use of the completed product—this after-thinking is the stuff of insight. Accumulated and compounded, it is the source of the depth and refinement in the work of artists and craftsmen working within a tradition, the depth and refinement which we envy and which the harsh radicalism of most modern architecture so sorely lacks. Certainly, our times call for greater maturity, and this is an educational path to it.

•

The second way in which I think architectural education is going to change is in the development of ways of teaching the auxiliary subjects by the designer's approach, thereby teaching design and the subject in question simultaneously. This will be forced by the present clear stalemate in available time: no curriculum can include an adequate selection of auxiliary subjects taught as they are today and still do justice to design. Such schools as MIT and RPI that try to do a good job on the technical side, swamp the student with a constipated curriculum which allows little time for self-development.

As an example of this integration of design with the other courses, there is a significant course in architectural history being developed at RPI by Robert

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Architectural Education—A Prediction

Winne, who treats the various periods of the past somewhat as Giedion has treated the development of building in America, with emphasis on the typical building rather than the famous landmark, and always emphasizing the social and technical facts of the times as generators of forms. He points out some extremely interesting facts about how building problems were solved, and how the architect worked in past times, and presents them in a thought-provoking way by making comparisons with present-day practice — comparisons which stimulate deeper thinking on our problems, at the same time that they give insight and appreciation of the old. This killing two birds with one stone is the point. He explains, for instance, that the Egyptians built their temples by filling in the whole building site with earth, raising the level as the job progressed, so that the hordes of slave workers were always working on grade, and that they roughed in the structure on the way up and then called in the stone carvers who decorated the surface as the building was gradually dug out. To a designer, this suggests a lot about Egyptian architecture—a harmony between the stratified character of the buildings and the stratified society and geology. Most important, it shows architecture as a process. The student of history on this basis is less likely to indulge in such thinking as the debate between horizontality versus verticality in skyscraper design in the '20s, without looking under the surface for the realities that inevitably give the answer.

On a recent exam, Winne asked his students this question: "It has been noted that in the evolution of various architectural forms some of them survive and become influential in later periods while others die out completely. What are the major causes or forces at work here? Illustrate your points from specific styles. Among the various forms in modern architecture name a few which you think will stand the test of time, and a few which will be short-lived." This is the kind of thinking any design instructor will try to arouse in the drafting room, but here it does double duty. It is worth noting that this approach to architectural history answers the student's question: "Why am I studying this stuff, anyway?" Without a genuine answer to this extremely valid question, the course tends to be a failure.

Perhaps the easiest and most obvious point at which this integration of design with other courses can be accomplished is in architectural drawing. I have in mind the course usually given in the first year on drafting technique, projective drawing, shades and shadows, etc. Although any architect teaching such a course will automatically inject a certain amount of design thinking, I think a great deal more could be done here than ever has been to my knowledge. What needs to be done, in a nutshell, is to apply the methods of visual comparison and criticism which are the basis of the teaching of any design. The student should be given choice, so that his project is a result of his own decisions rather than "how to" instruction laid down by the instructor. For instance: three standard ways of emphasizing members drawn in section to distinguish them from parts in the same drawing shown in elevation are (1) line weight, (2) cross-hatching or other area indication of sectioned materials, (3) both of these combined. The student might compare these himself by drawing the same detail three ways alongside a single-line-weight example as a control; then develop, himself, the advantages and drawbacks of the different methods. The discussion of such a simple exercise as this will bring up some surprisingly profound design topics such as the effectiveness of area treatment within a linear composition, the principle of speed or minimum operations in drafting and in all craftsmanship, and depth-illusion through controlled contrast. But the important thing is that the student is taught to think, rather than follow a rule.

This approach to teaching drafting could well be elaborated. In fact, there is a need for a textbook along these lines which would be discussion of general principles, comparative examples, and a series of design projects aimed at developing critical judgment rather than promulgating rules. The rule is usually wrong twice: it is wrong teaching and it is wrong in itself because it says there is a "right way" to do the operation in question.

Most important of all, I think we are going to see a change in the way structural engineering is taught to architectural students. I say most important because this subject takes more of the students' time than any of the others, in addition to the fact that structural considerations play such a central role in the control and inspiration of architectural form. When I look back at the time and drudgery I put in, myself, on various structural courses and then consider the small amount of this training retained by use, and the great development in structural design in recent years to the point that simple determinate structures seem obsolete, it seems like a lot of time for very little learning.

I think this teaching was inefficient because it put all emphasis on the sizing of members whose span, material, and loading were given. This is perhaps the typical use of engineering technique for the engineer, but not the architect. The architect's role as coordinator on the building team requires general knowledge of structure: the main principles, advantages and disadvantages, and terminology of methods, including welding, prestressing, shell construction, etc. The architect's other role as designer requires as much insight as possible into the way that structures perform. The emphasis should be on design rather than analysis: applying engineering technique to determining over-all form rather than mere sizing of members.

Specifically, this means two things: more general treatment of material covering a wider range, and presentation of the minimum mathematical technique required in ways that suggest its creative architectural application. A good example of the former is Eric de Mare's book, *New Ways of Building*. A good example of the latter is a problem on deflection that I have been told was once given on the California registration exam, worded something like this: "As the architect on a remodeling job you find within a floor a steel beam whose weight per foot cannot be determined. By measurement you find that the span is x number of feet, the depth of the beam is x inches, and that it has deflected x inches. What is the maximum stress within this beam now, and how much concentrated load could be added at the midpoint without exceeding the allowable 20,000 pounds per square inch?" This presentation not only shows application, but dramatizes the potency of Hooke's Law.

The use of the comparative method could be extremely valuable in putting structural engineering in a design framework. Let each student choose his own method of framing a given bay or his own location of supports under a continuous beam, then after figuring the required members, total the quantity of material and pin his solution on the wall for discussion and comparison. This approach would bring in a degree of competition, as well as exercise skill in visual presentation and structural intuition.

A very stimulating experience for the student would be occasional guess questions, where students would be given external forces on members and asked to guess their sectional dimensions in different materials. Actually the imagination of the instructor is the only limit on what could be done. The point is that in the office and the field, structural problems that come up are commonly the most fascinating puzzles that could challenge an active mind, and are most intimately involved in architectural design in its deepest aspects. The value of the subject to architectural students can be measured by the extent to which it exploits this.

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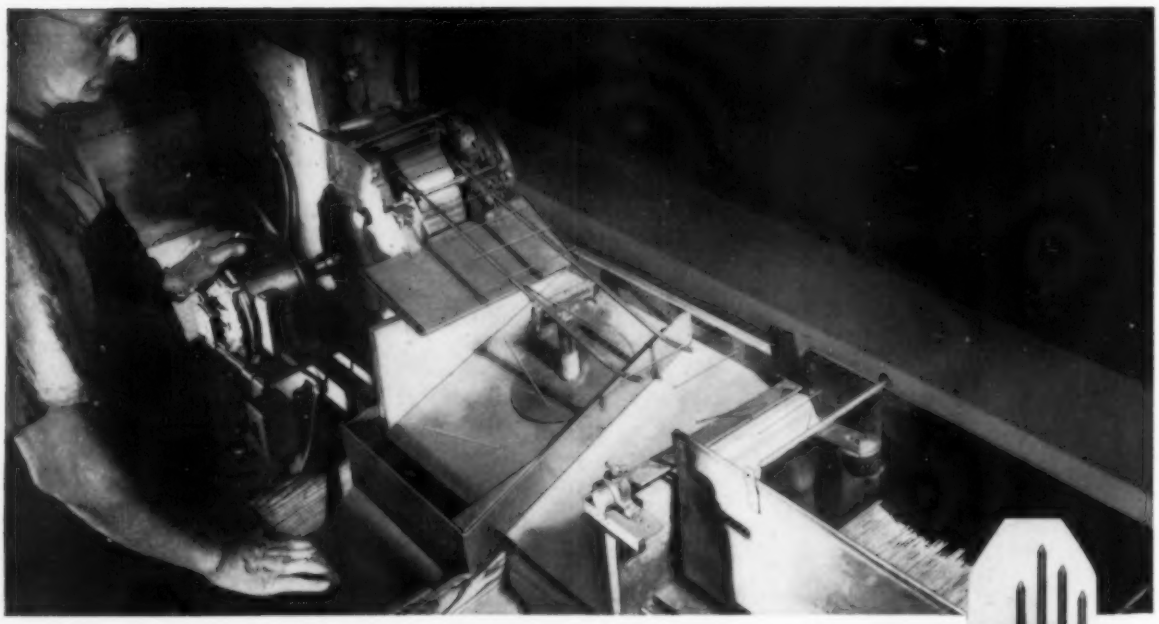

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another hung roof

Dear Editor: Enjoyed your stimulating article in March 1956 P/A on "Hung Roofs," very much. However, the otherwise excellent illustrations, portraying this principle, began with early man then jumped to modern applications and ignored completely that period of our national history

which utilized this shape to great advantage in the Prairie Schooner, in the days of the Golden West.

RUSSELL B. MAXEY
Columbia, S. C.

favors single contract

Dear Editor: Your article in February 1956 P/A *(page 11)* recommending bid separation recommends a multiplicity of contracts on building construction.

It is quite obvious that the writer of that article has never been in charge of sizable building construction. To say that progressive architects have recognized such a need in order to reduce cost is childish. The architect reduces his fee, and starts taking on responsibility which belongs to the general contractor on a single contract job.

Over a period of years of handling over a hundred million dollars in construction and seeing buildings built under both methods, I see no advantages in separating the contracts —and tremendous advantage to the owner and to the architect in a single-contract operation.

Why should any sensible architect increase his own responsibilities, reduce his own fees, and definitely short-change the owner, although he may not know it? No, indeed, the theory of this article is a step backwards in the great building industry.

ALBERT O. LARSON
Minneapolis, Minn.

spring is here

Dear Editor: Your mention of poetry in February P.S. prompts the following. Some years ago, exactly when and in what publication I don't know, I read this:

"The Architect puffed at his period pipe
As he sat in his Renaissance chair,
He gave me a smile
In the pure Gothic style,
While he spoke with a Romanesque air."

Poetry may not be the correct classification, but anyway I thought it might be brought up to date, more or less:

The Architect puffed at his chromium pipe
As he sat in his Rational chair,
He gave me a smile
In the pure Gothic style,
While he spoke with an Organic air.

Might as well take this occasion to tell you that I usually read P.S. first, then P/A in the usual manner, front to back.

ARTHUR MEGGETT
Hamilton, N. Y.

time to protest!

Dear Editor: It is high time someone raised an objecting voice against the architectural eccentricities being perpetrated on New Yorkers.

First, we are subjected to the publicity-hungry Zeckendorf with his peculiar plots for blotting out the little remaining sunlight filtering down to the man in the street. All sorts of towering monstrosities have been conjured up in Zeckendorf's imagination. His fantastic deals, accorded wire coverage on the front pages of the press, are invariably canceled within a few weeks, notice of which appears, invariably, as a

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footnote to the realty section. We can only hope that Zeckendorf's "castles in the air rights" over Grand Central Terminal and Pennsylvania Depot will continue to be canceled.

Second, without question the most revolting and appalling structure to assail the eye of man is now to be seen nearing completion in the Socony Building, Lexington Avenue at 42nd Street. This project, an imposing edifice which could easily have become a monument of large-scale modern architecture, has, under the architects' program of "uglification," irrevocably aborted: the stainless-steel industry, in the outspoken opinion of a number of New York architects, has been set back 15 years.

Now we are faced with Crown, an out-of-towner who heads up his recently purchased white elephant, the Empire State Building. Engaging in an apparent "Can You Top This?" with Zeckendorf, Crown proposes to top his concrete cigar with searchlights. The Empire State Building, long an economic anomaly, has grown on us these many years and, despite its questionable architectural advantages, appears itself to represent, by its very height, the technological superiority of the United States. The Eiffel Tower in Paris, long regarded as degenerate by the French, grew on them, too, until today it is virtually the symbol of France itself.

But the United States already has a national symbol—the Lady in New York harbor—and Crown's presumptive gall at suggesting that searchlights atop the Empire State Building could eventually replace the Statue of Liberty and what she means to millions throughout the world is, to say the least, insulting.

We must protest, we must protest, we must protest! Why should New York be visible from Boston, Buffalo, or Baltimore? Is it not sufficient that such architectural disasters as the Socony Building are visible from two blocks off? Must we create eyesores in the sky?

It becomes immediately and patently apparent that New York needs an Architectural Commission devoted to the prevention of foisting artless behemoths, these tasteless catastrophes, on its citizens—much in the same way architectural commissions in other cities restrict the types of architecture in certain sections to conform to existing patterns.

Until such a Commission is formed, all of us will be subject to the bourgeois architectural whims of those who buy architecture, instead of being able to enjoy the tasteful creations of imaginative designers, trained and qualified in their work.

LAURENCE URDANG
New York, N. Y.

new theater design

Dear Editor: The auditorium at Orange Coast College designed by

(Continued on page 16)

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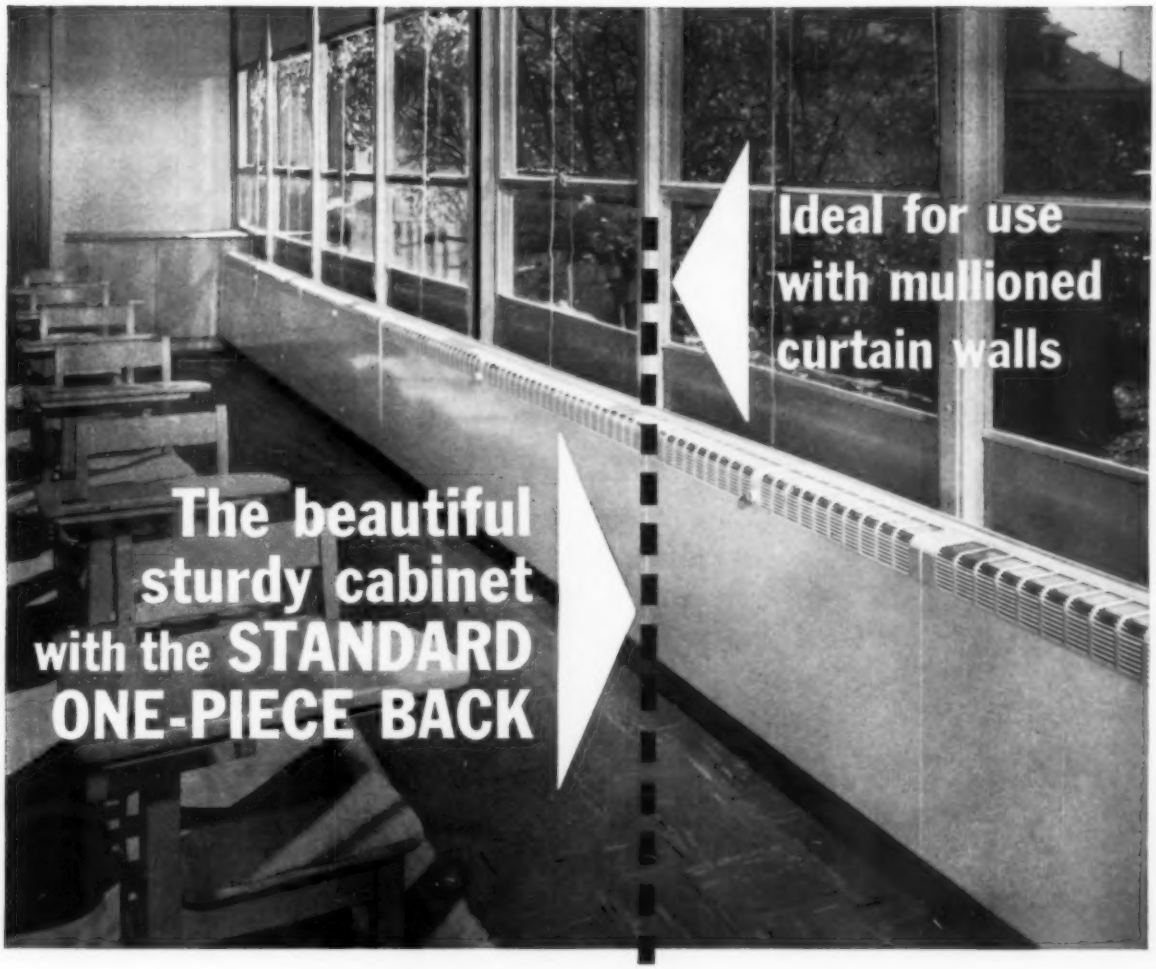

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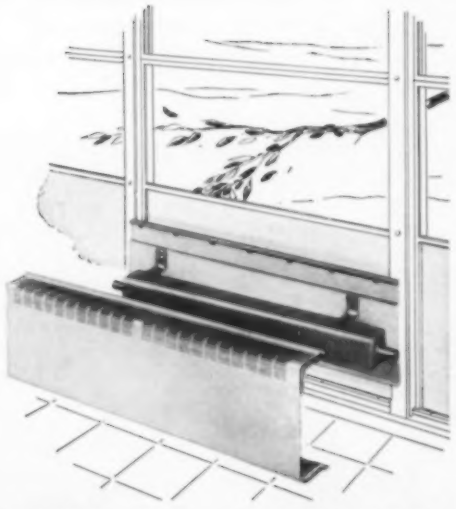

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(Continued from page 14)

Richard J. Neutra & Robert E. Alexander and shown in December 1955 P/A *(pages 104-109)* has many possibilities for exciting theater, but from 20 years of experience in designing and directing in college and university drama departments, I should like to raise a number of questions about certain of its features. Neutra is a most distinguished architect, and because he is particularly noted for his schools, some of the more questionable elements of this building are going to be copied. Unfortunately, to judge by several of the high school and junior college auditoriums now being erected in California, they are going to be copied by architects who have absolutely no understanding of the problems of dramatic production.

These are my questions, referring only to the use of the auditorium for theatrical performances. The side stages are an intriguing device, as are those built at the University of Wisconsin, the Phoenix Little Theater, and elsewhere, but I wonder how often they will be used. The double revolving stages are certainly more practical than a single large disk which often forces the designer into planning pie-shaped sets, but again I wonder whether what must have been a considerable additional cost is justified by the number of times a year the revolvers will be employed. Anyone who has ever attempted to raise and lower an orchestra pit floor supported on pipes or boxes would prefer to have had the money spent for an orchestra pit elevator and a forestage useful for musical events as well as for Shakespeare, Greek tragedies, or any other productions requiring a wide apron.

The provision for theater-in-the-round on the stage itself is an excellent idea, but our experience at Stanford in trying to do arena theater, on the large 55x100 ft stage of Memorial Auditorium is that there are so many concerts, lectures, movies, and classes scheduled in the auditorium that it is almost impossible to find a time for rehearsal or the larger number of performance dates required by the small seating capacity of arena theater. We would be better off at Stanford, as I am sure the department at Orange Coast College would be, if the architect had provided somewhere in the building a large open room suitable for arena or flexible staging rather

(Continued on page 18)

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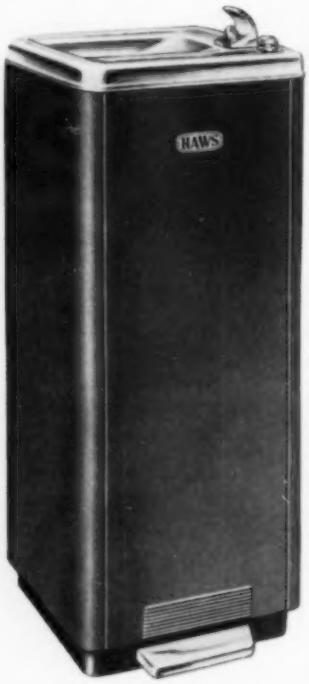

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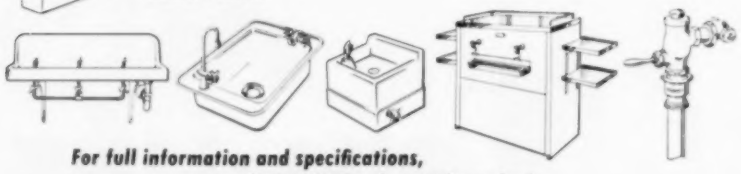

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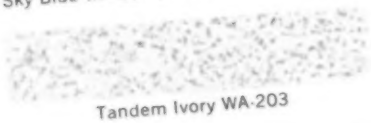
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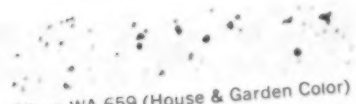
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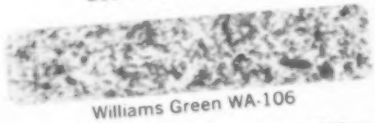
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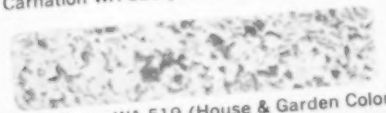
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(Continued from page 16)

than so many elaborate mechanical devices on the stage itself. While I realize that the elimination of the high-stage house and the gridiron represents a saving in construction costs, I trust that other architects who copy this method realize that the addition of two revolving stages does little to solve the lighting, scene shifting, and masking problems caused by the lack of a counterweight system and overhead flying space.

My principal objection, however, is to the size and planning of the auditorium itself. Your article would seem to indicate, by implication at least, that a 1200-seat auditorium with seats all on one floor is suitable for dramatic production. It is not! Only the more violent plays of Shakespeare, musical shows, or productions involving large casts and spectacular scenes can be played in an auditorium of that size and shape. But 14 or 15 rows of seats on the orchestra floor should be the maximum number when modern plays are to be presented. Even though the acoustics may be excellent and the spectator can understand every word from the 25th row (as we may hope is possible in the Orange Coast College auditorium), he cannot see the facial expressions or detailed stage business so vital in modern productions. A balcony may cost more, and it may be undemocratic, but it certainly gets the audience closer to the actors. Almost every new American auditorium in recent years seems to be an imitation of the wide fan-shaped form established in the late 19th Century by such German theaters as Wagner's Festspielhaus at Bayreuth and the Prinzregenten in Munich. But both of these auditoriums, architects should remember, were built for opera, not for college students struggling with the latest Broadway comedy. A fan-shaped auditorium with no balcony and 1200 seats in 25 rows may be useful for motion pictures or an orchestra concert, but it is not satisfactory for a dramatic production, even if the solution is to have an audience of 400 sit in the front rows. No one has solved the problem, even Lewerentz in his celebrated theater at Malmö, Sweden, of cutting down the size of an auditorium with curtains or panels, because it is psychologically unsound for an audience to realize that only a small number of playgoers are expected at a performance.

In spite of the questions I have raised, it seems to me that Neutra's auditorium is a most exciting building which should stimulate architects everywhere to abandon the worn-out clichés of the Broadway proscenium stage, and to experiment with new ideas and forms of theater building. Neutra's auditorium also indicates the fact, long recognized in Europe

(Continued on page 26)

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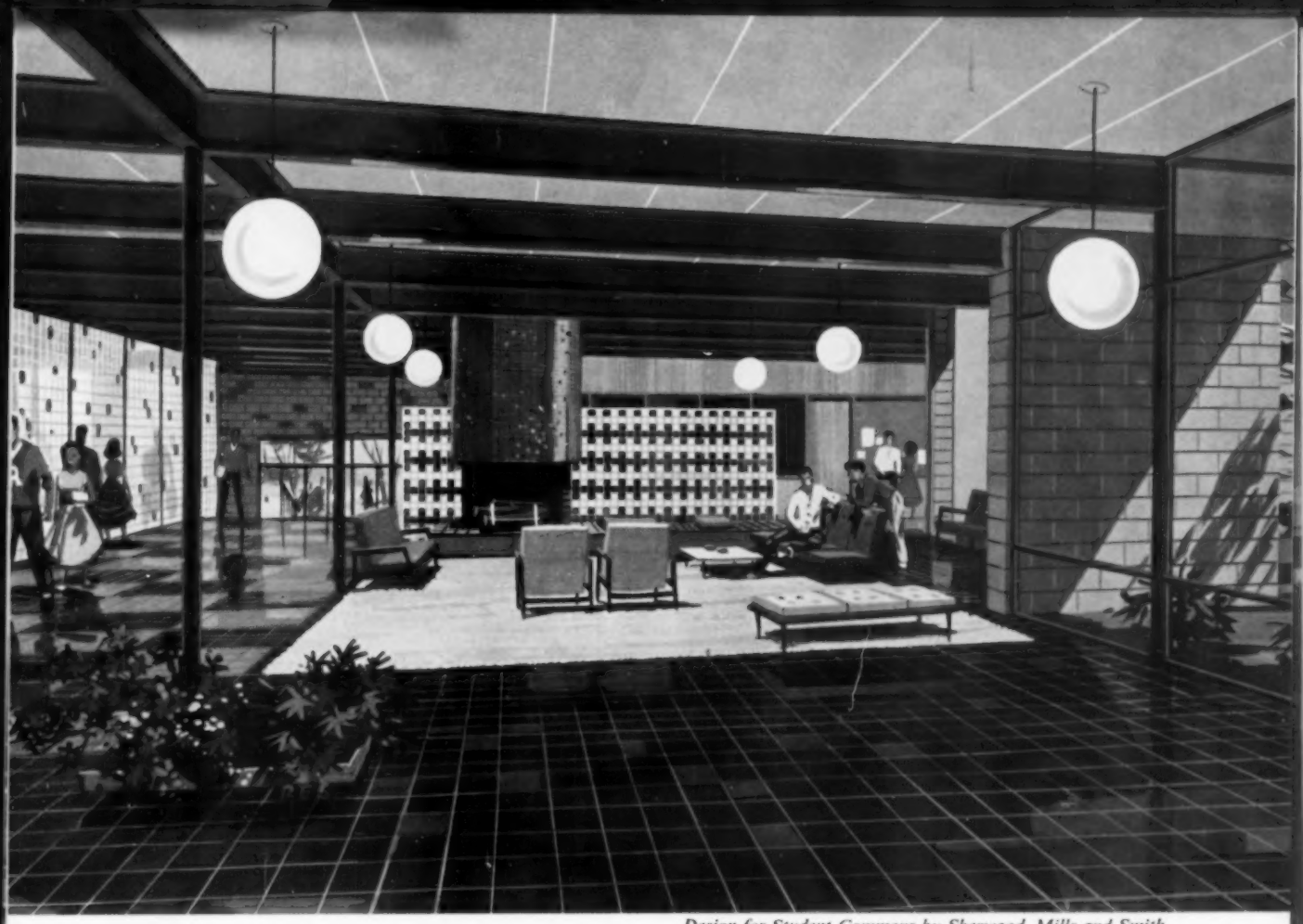

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In every guest room at the beautiful Beverly Hilton in Beverly Hills—as in countless commercial and residential quality installations everywhere—Arcadia is the specification for sliding glass doors.

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"There is hardly anything in the world that some man cannot make a little worse and a little cheaper—and the people who consider price alone are this man's lawful prey."

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Markwa Marble wall and floor tiles, one-half inch thick, available in three sizes (8" x 8", 8" x 12", 12" x 12") in 18 colors. Set with cement or mastic, as with ordinary tile.

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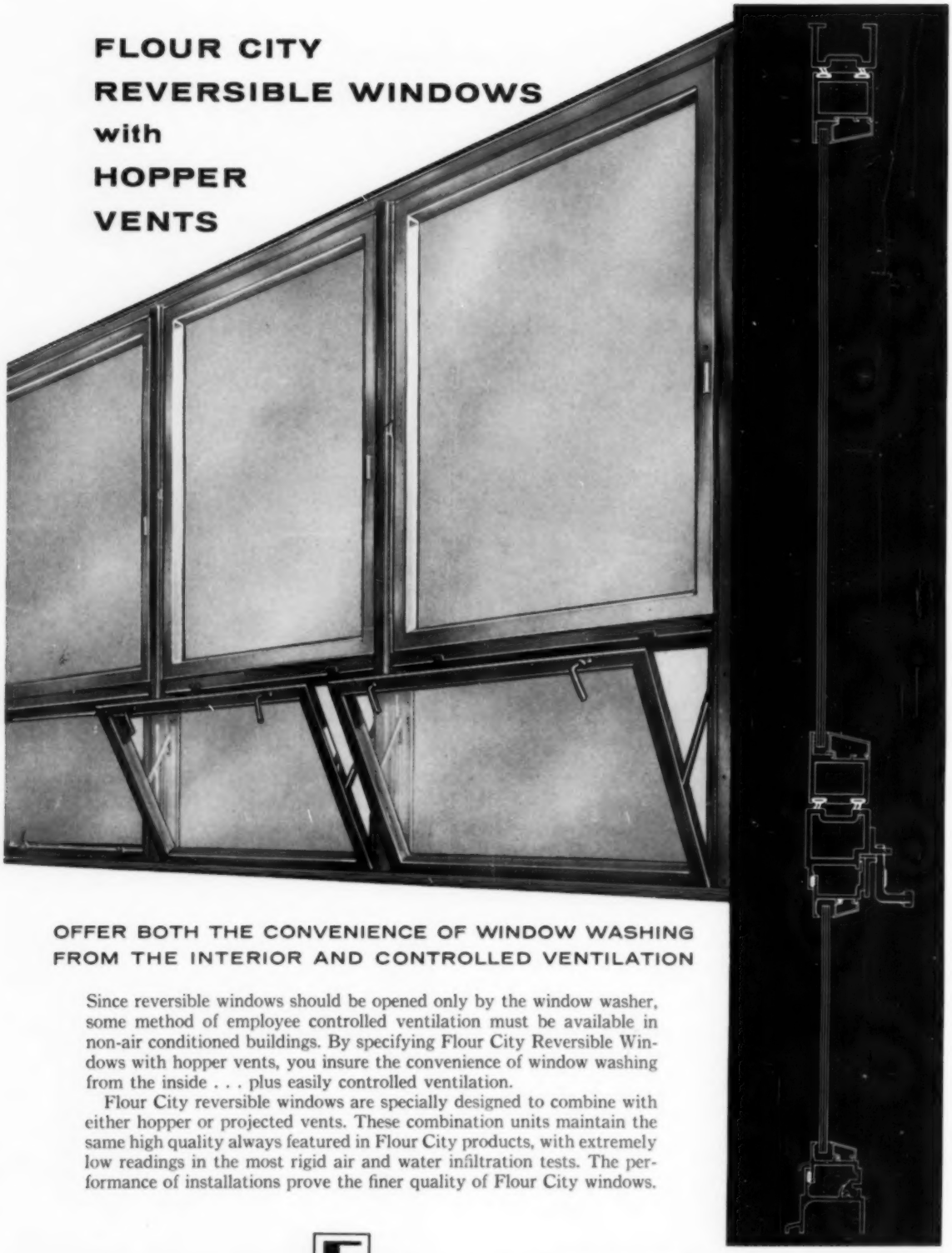
VERMONT MARBLE COMPANY • PROCTOR, VERMONT

FLOUR CITY REVERSIBLE WINDOWS with HOPPER VENTS



OFFER BOTH THE CONVENIENCE OF WINDOW WASHING FROM THE INTERIOR AND CONTROLLED VENTILATION

Since reversible windows should be opened only by the window washer, some method of employee controlled ventilation must be available in non-air conditioned buildings. By specifying Flour City Reversible Windows with hopper vents, you insure the convenience of window washing from the inside . . . plus easily controlled ventilation.

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SEE OUR CATALOG IN SWEET'S FILE 17a Flo

FC The FLOUR CITY Ornamental IRON COMPANY

2637 27TH AVENUE SOUTH • MINNEAPOLIS, MINNESOTA

Cherry V-Plank and plywood built-ins make the fireplace wall a focal point, give the whole room spaciousness and charm. Yet all the V-Plank paneling shown costs just $105 retail.

Cherry V-Plank by Weldwood

. . . a textured panel for comfortable traditional, or a warm accent for modern. Beautifully *prefinished*—at 78 cents per square foot*

The warmth of native American cherry . . . handsomely textured in a random plank effect . . . gives a glowing beauty to this traditional setting. Available in a variety of popular woods (see below), Weldwood V-Plank panels give new opportunities for distinctive interiors—traditional or modern—at remarkably low cost. *Colonial* V-Plank provides pegged effect.

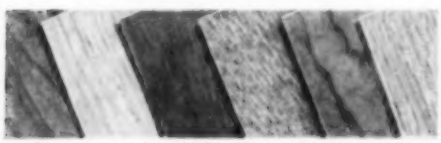
CONVENIENT SIZE: Stocked in 4 by 7 and 4 by 8 foot sizes, ¼-inch thick. Large panels save handling and installation time—yet give effect of separate planks. Installation can be by Weldwood Contact Cement method—which requires no face nails—or by face nails concealed in v-grooves, which fall on 16-inch centers. Beveled edges give v-groove effect between adjacent panels, and conceal joints.

FINISH: V-Plank panels are available prefinished, or unfinished at lower cost. Unfinished panels can be finished to specification after installation. Weldwood factory finishes meet Government Specification MIL-F-002319A (QMC) of July 10, 1953—and save time, mess, and cost of on-the-job finishing. The slight additional cost of prefinished panels is considerably less than the cost of on-the-job finishing—and V-Plank panels, like all interior Weldwood paneling, are guaranteed for the life of the building.

USES: V-Plank can be used vertically or horizontally, and provides a striking interior for residential, commercial, and office use. Easy to keep clean, prefinished V-Plank requires only an occasional waxing.

WHERE TO SEE IT: Call your Weldwood Architect's Service Representative, or visit your lumber dealer or any of 87 United States Plywood Branch offices in principal cities. In Canada: Weldwood Plywood Ltd.

Suggested Specification: Wall paneling shall be Weldwood (species) V-Plank plywood paneling, as manufactured by United States Plywood Corporation, ¼ inch in thickness, in panels (4 by 7, 4 by 8) feet in size, glue bond shall be Urea Formaldehyde hot press method; exposed faces shall be in random-plank effect, with alternate grooves falling on 16-inch centers; panels to be prefinished in accordance with U. S. Government Specification MIL-F-002319 A (QMC); panels to be installed (horizontally, vertically), over (existing wall, on studs, or on furring strips), face nailed with ¾ inch brads on 6" centers on outer edges of panel and on 12" centers on intermediate studs, concealed in v-grooves (or with Weldwood Contact Cement, according to instructions of manufacturer).



Prices per square foot of 6 fine V-Plank prefinished woods: (from left) walnut 78¢, Korina® 78¢, mahogany 78¢, Samara† 51¢, cherry 78¢, oak 78¢. †Trade Mark *Approximate Retail Price

Weldwood®

V-Plank† Paneling

Product of

UNITED STATES PLYWOOD CORPORATION

United States Plywood Corporation
Architect's Service Department
55 West 44th Street, New York 36, N. Y.

Please send me data folder on Weldwood V-Plank, together with sheet of installation drawings and instructions.

☐ Please include 48-page Weldwood full-line catalog with price information.

PA 5-56

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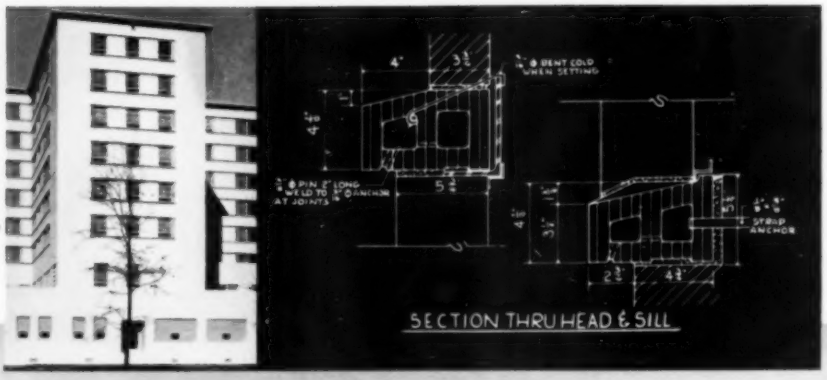
Throughout this modern hospital, sills, jambs and lintels of Architectural Terra Cotta, in a mottled effect combining blue and green, provide added character through the use of color.



Colorful sills, jambs and lintels complement this hospital facing

Architectural Terra Cotta combines so readily and impressively with other materials that it gives you utmost design freedom. The range of available colors and textures rivals the imagination. In form, you have plain surfaces, sculpture or decorative panels from which to choose. Units can be large or small, for interiors or exteriors. Such is the versatility of Architectural Terra Cotta, custom-made to your specifications by Federal Seaboard. No other building material offers so much—in quality, color, appearance, permanence and price. Moreover, its original richness and beauty are retained indefinitely by simple soap-and-water washings.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Architectural Terra Cotta and Ceramic Veneer.

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SELECTED FOR THE OFFICES, Solid Olsonite #10 White Shock-Proof Seats. Designed to last a lifetime of normal use, they are solid all the way through. Olsonite Seats will not crack, chip or peel.

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#10 Olsonite Seats—available in black or white

#57 Olsonite Seats — available in more than 35 colors, plain or pearlescent

SOLID Olsonite SEATS

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Plastics Division, 8561 Butler Ave., Detroit 11, Michigan
ORIGINATORS OF THE SOLID PLASTIC SEAT

The Price Tower, Bartlesville, Oklahoma . . . Architect: Frank Lloyd Wright
Owner: H. C. Price Co. Mechanical Engineer: W. J. Collins, Jr.
Mechanical Contractor: W. A. Landers
Fixture Supplier: Crane Company

(Continued from page 18)

if not in the United States, that much of the interesting experimentation with production techniques is occurring not on Broadway, but in the educational theater.

WENDELL COLE
Stanford, Calif.

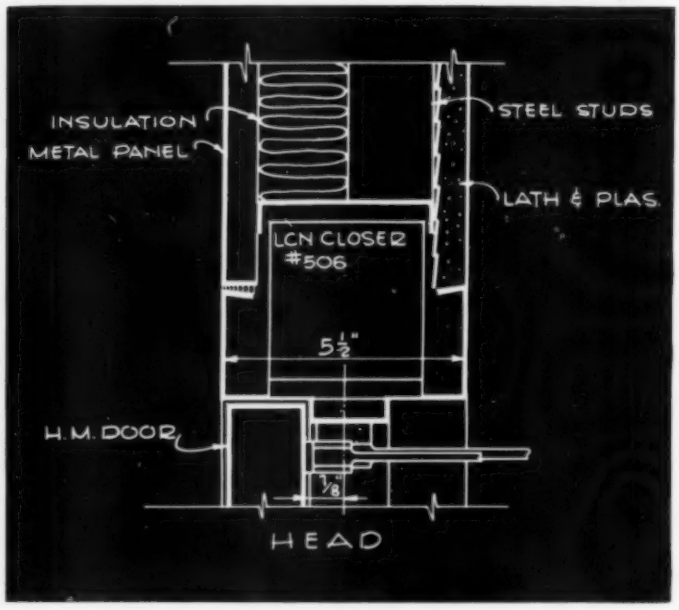
esthetic plus

Dear Editor: I was very pleased to see the excellent article "Hi-Fi: Architectural Considerations," by Howard Sterling and Groff Conklin, in August 1955 P/A. You have performed a real service in pointing out to architects another way they can improve the esthetic side of home life. Especially useful, I thought, were the comments on the high-fidelity room. Room factors can make an amazing difference. However, before the architect goes too far in recommending special treatments to achieve ideal acoustics, he should be well aware that anything he does can be changed by the ultimate arrangement of furniture, type and size of draperies, or other variables which will depend on the whim of the mistress of the house.

I can see the authors' point in recommending just about the best speaker system they could devise, but I think before an architect gets involved in this field there are a few more things he should know. First, to many, high fidelity is a hobby. Therefore, unless the architect is a hi-fi bug himself he may find that the client knows, or thinks he knows, a lot more about the subject than the architect. Second, there is a very wide range of high-fidelity components and combinations —nearly all of them better than commercial phonographs. The difference between components or methods of setting them up often is very slight, so that selection is very subjective. The point is, that just because a client can not afford an LC-1A speaker in a built-in horn is no reason he should give up the idea of hi-fi. There are many other solutions, most of them much less expensive, which will give most listeners all the pleasure and satisfaction they would ask. For example, G. A. Briggs, quoted in the article, has published dimensions for a brick reflex enclosure. It gives as good bass as any horn I have heard and is easily installed in a basement recreation room (which is the best room for true hi-fi listening, especially if soundproofed).

Of course, the true audiophile will not rest as long as he thinks it is possible to achieve a few more notes of bass or better sound, even if he has to build a new house to accommodate an exponential horn! I wonder—do you have any more construction details on the exponential horn that you could send me?

CLEVELAND LANE
Washington, D. C.



CONSTRUCTION DETAILS
for LCN Overhead Concealed Door Closer Installation
Shown on Opposite Page

The LCN Series 500 Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
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or See Sweet's 1956, Sec. 18e/L

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MODERN DOOR CONTROL BY *LCN* · CLOSERS CONCEALED IN HEAD FRAME

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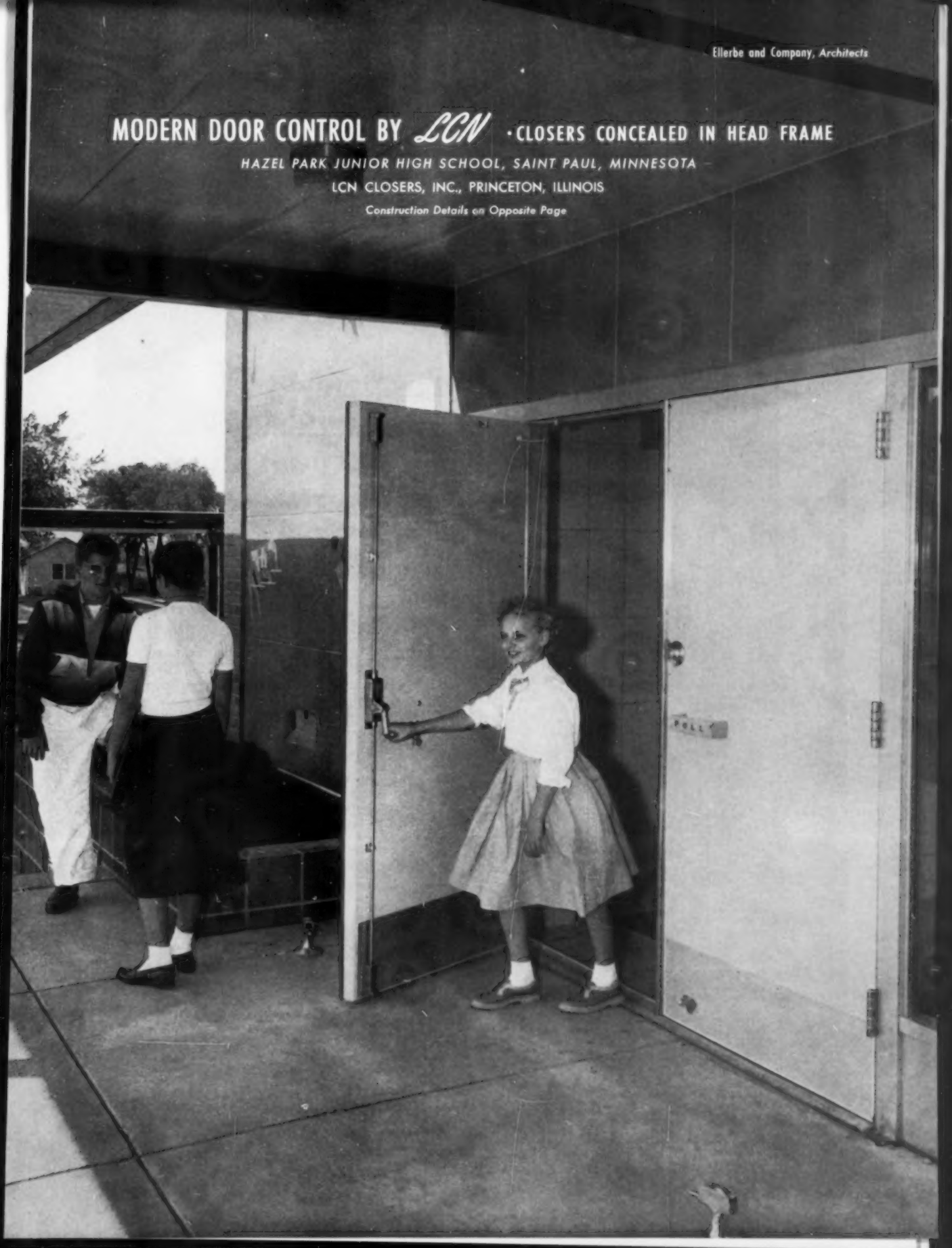
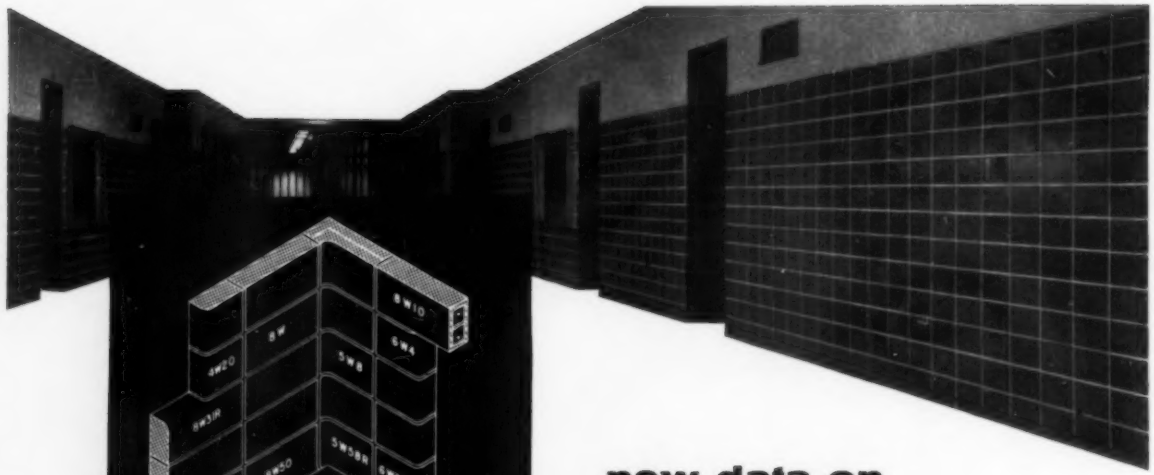
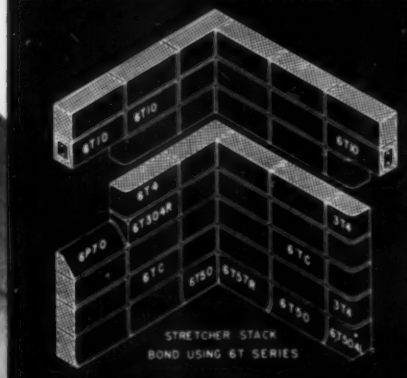
Construction Details on Opposite Page







new data on stack bonds in STRUCTURAL CLAY FACING TILE

The drawings reproduced here are from new Technical Notes, prepared to help architects and contractors make proper use of Structural Clay Facing Tile in the currently popular stack bonds.

These informative "Tech Notes" cover specification of units, layout, bonding and other techniques required to gain the design effects desired when Facing Tile is laid up with continuous vertical and horizontal joints.

To get your free copy, write us on your letterhead or send the coupon below.

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2556 Clearview Avenue, N.W.
Canton 8, Ohio

Please send me "Technical Notes on Stack Bonds in Structural Clay Facing Tile".

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When you turn this page,
you will read a message
which ranks in significance
with any we have published in
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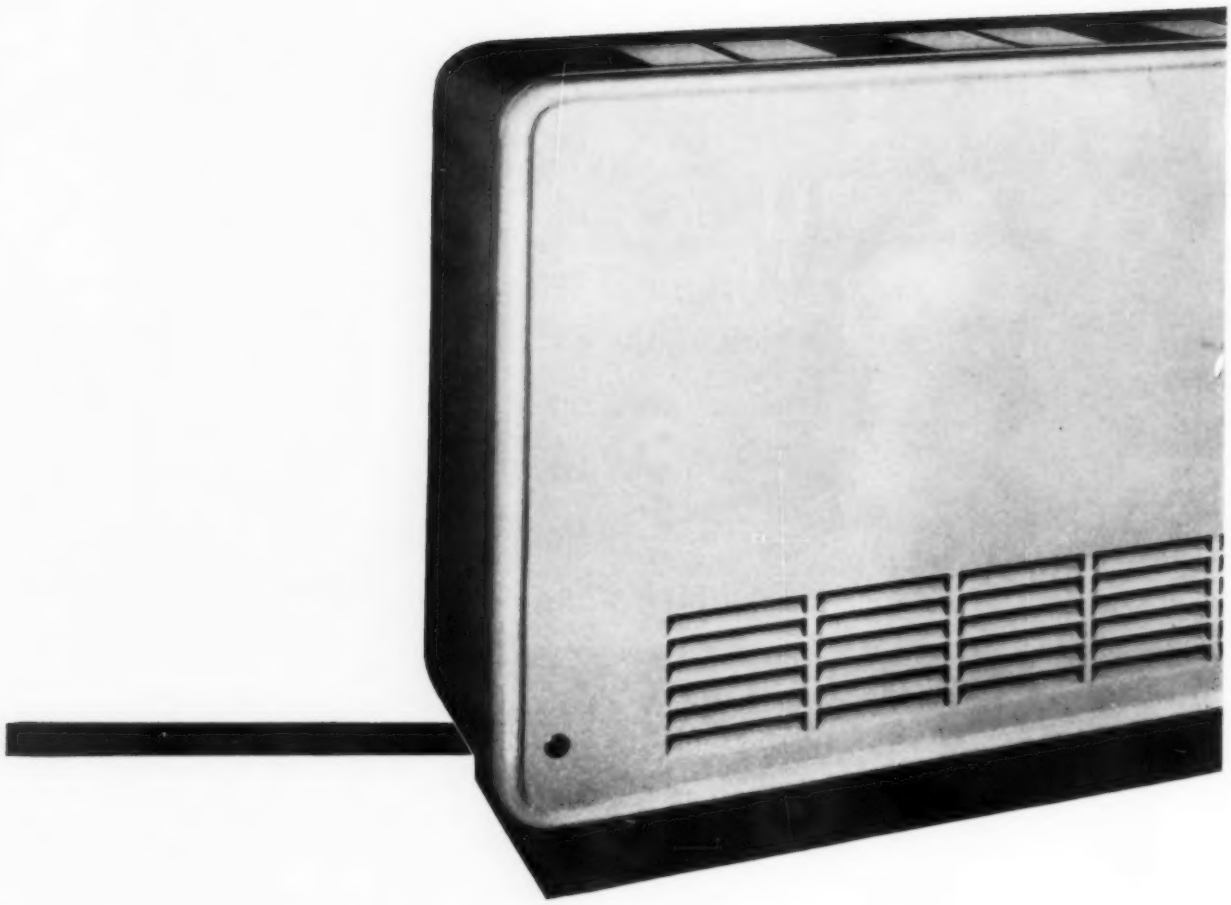
Herman Nelson Announces Designed, Built, Priced



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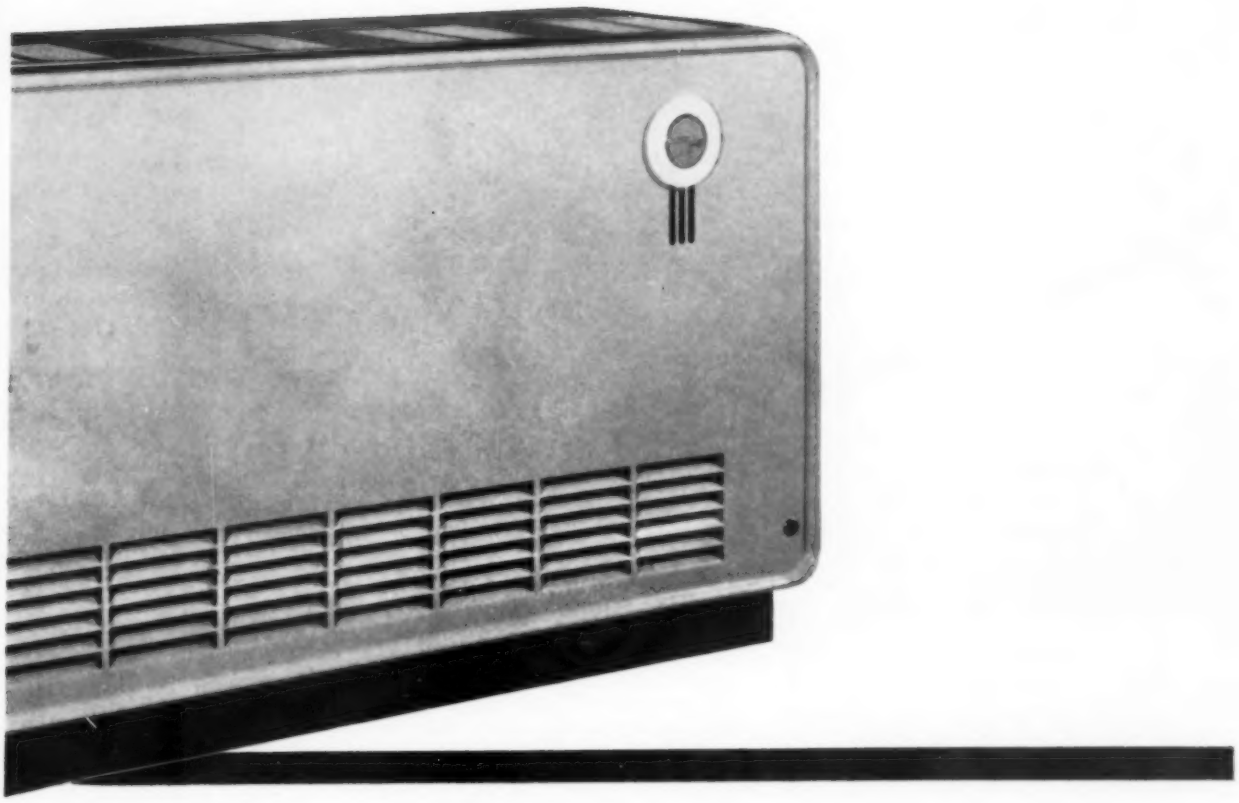
Fully Tested . . . *In Classrooms.* There were countless design changes, innumerable modifications. Finally, the working models—with factory installed packaged controls, electronic or pneumatic—were ready. These were put to work proving themselves on the job. First installations were made in classrooms throughout the South, where air conditioning needs could put them to the stiffest tests. Here—during the

First AIR CONDITIONING UNIT Specifically for Schools



winter months—they function as natural cooling-heating-ventilating units. When temperature zooms, they switch automatically to mechanical air conditioning. Conditions were rigorous, but the HerNel-Cool Air Conditioner exceeded every requirement!

It's Ready For You . . . NOW. Recognizing the growing need and demand for year-round air conditioning at the college, university and high school level, the Herman Nelson HerNel-Cool Air Conditioner is now ready to meet this requirement. Years of proof-in-use is always a sound buying gauge. And the HerNel-Cool Air Conditioner *has it*. For your FREE copy of our new 20-page book "HerNel-Cool AIR CONDITIONER for Schools," write Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky

herman nelson
PRODUCTS
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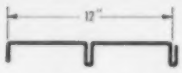
System of Classroom Cooling, Heating and Ventilating

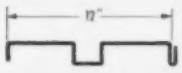
STEEL DECK
and LONG SPAN
M-DECKS

Mahon Long Span M-Deck installed on a multi-story office building for Ford Motor Company, Dearborn, Michigan. Voorhees, Walker, Foley & Smith, New York, N.Y., Architects. Bryant & Detwiler Co., Detroit, Mich., General Contractors.

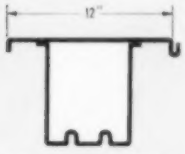
MAHON STEEL DECK and LONG SPAN M-DECK SECTIONS



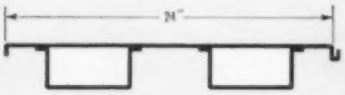
STANDARD DOUBLE RIB



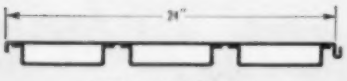
WIDE-FLANGE DOUBLE RIB



LONG SPAN M-DECK SECTION M1



LONG SPAN M-DECK SECTION M2



LONG SPAN M-DECK SECTION M3

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Manufacturers of Steel Roof Deck and Long Span M-Decks; Structural Acoustical and Recessed Lighting Troffer Sections; Permanent Concrete Floor Forms; Insulated Metal Walls and Wall Panels; Rolling Steel Doors, Grilles and Underwriters' Labeled Automatic Rolling Steel Fire Doors and Fire Shutters.

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Lighting engineers, designers, and users have learned to depend upon the consistently high quality of General Electric fluorescent lamp ballasts.

They know that the rigid material specifications and constant production line tests mean uniformly good ballasts; save lighting dollars by minimizing early replacement and maintenance costs.

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By actual count a G-E ballast receives 258 different tests and checks before packing and shipment! This painstaking care pays off to you in highly dependable operation, efficient lamp output, and long ballast life—it saves you valuable lighting dollars.

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A G-E ballast tag or sticker on your fixture is proof that it's equipped with the best in ballast value. It's the easy way to be certain. For further information on G-E ballasts, write Section 401-9, General Electric Company, Schenectady 5, New York.

*Miss Fluorescent Ballast, G. E.'s Ballast Mascot

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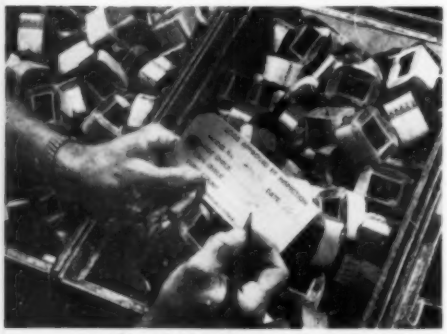

CLOSE INSPECTION of each component assures you of high quality ballasts, lower lighting costs and dependable performance.

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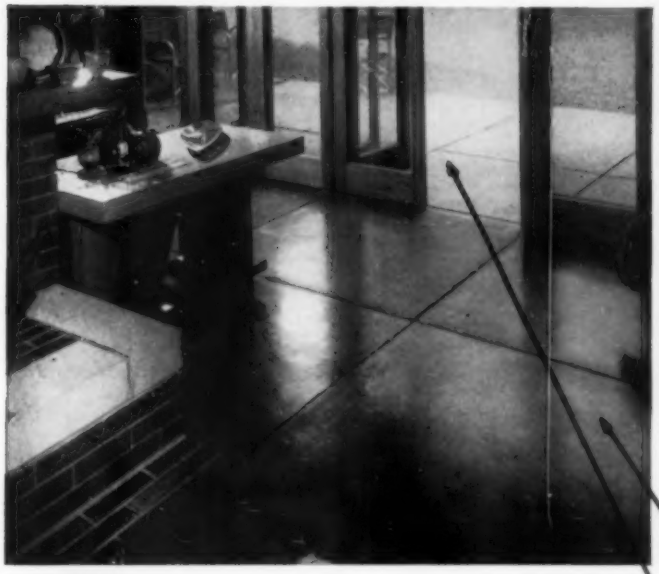
Progress Is Our Most Important Product

GENERAL ELECTRIC

Home of Mrs. I. Zimmerman, Manchester, N. H.
Designed by Frank Lloyd Wright



From the first rough sketches . . .

Frank Lloyd Wright specified Colorundum floors for their warmth of color and beauty."

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"Look at these photographs of our exciting new home and you can see why we just wouldn't consider drab, colorless concrete. From the first rough sketches," writes Mrs. Zimmerman, "we planned attractive, luxurious Colorundum for the patio and the service areas . . . especially when we found out how little it cost!"

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Colorundum is far more resistant to traffic than ordinary concrete floors. It is a balanced formulation of nonslip aggregate (next to the diamond in hardness), water-repellent compounds, and durable colors . . . contains no silica, quartz, metal or sand. It is easy to keep clean, and since it contains no metal, it will not rust or stain.

Colorundum is available in eleven decorator colors.

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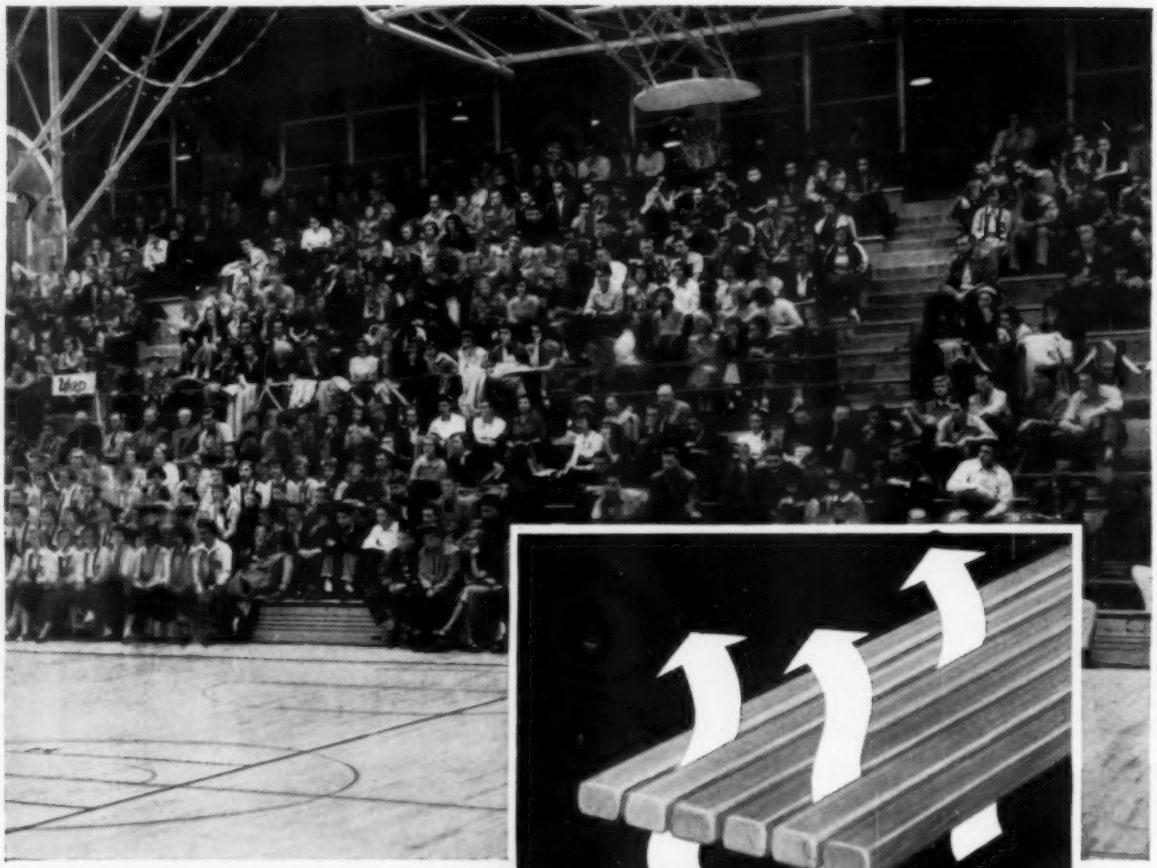
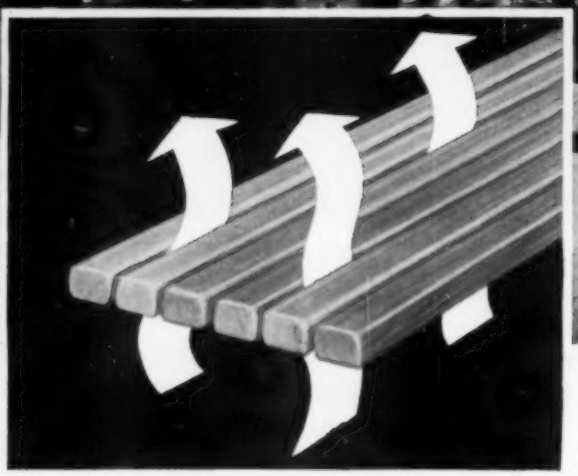
Exclusive with Brunswick-Horn Folding Gym Seating





Rail type boards

eliminate costly ventilating problems

No manufacturer but Brunswick-Horn offers you rail type seat, foot and skirt boards that provide free circulation of air. Wall-located vents continue to operate efficiently and there is no need to go to the expense of extending ductwork to the front of the seating unit.

One-quarter inch air spaces between the rails provides maximum circulation with the unit open or closed. Greater resiliency means increased comfort, too, and the lighter weight means easier handling and maintenance.

Here is another *exclusive* feature of Brunswick-Horn Folding Gym Seating. For more details on rail type boards, plus the other features that make this the best buy for *your* gymnasium, call your Brunswick-Horn representative today.

See SWEET'S $\frac{22\,J}{Ho}$

THE BRUNSWICK-BALKE-COLLENDER COMPANY
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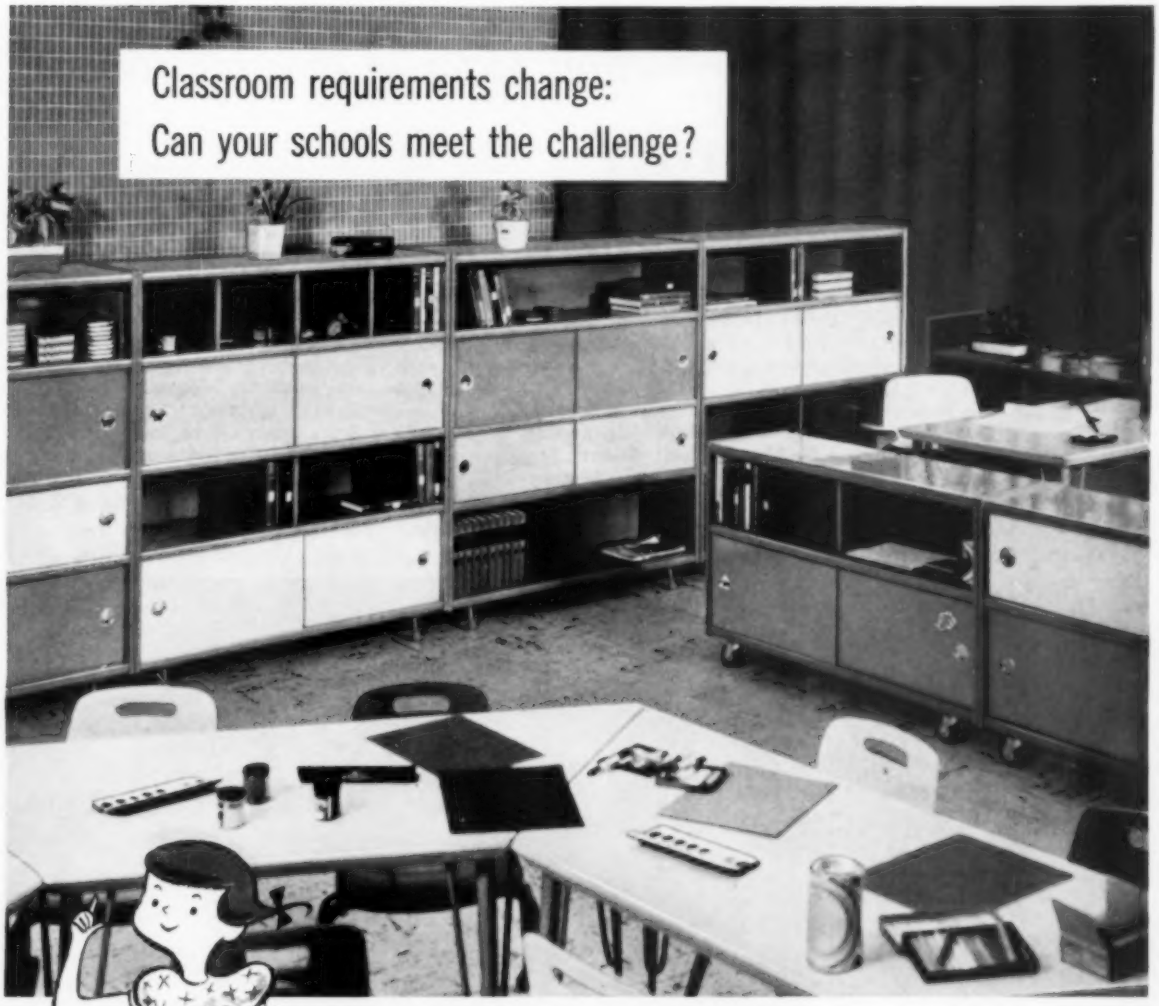
Brunswick Horn



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Storage is only *one* use for classroom cabinets by Brunswick. Up-to-date, economy-minded schools everywhere are using them as easily re-arranged room dividers to set-off study, project and play areas.

This is *flexibility* that built-in cabinets never can offer . . . flexibility that lets the schools you plan meet the changing requirements of the classroom.

Here's new flexibility and bright new color. Here's a saving over costly job-built millwork—in factory-built Brunswick cabinets.

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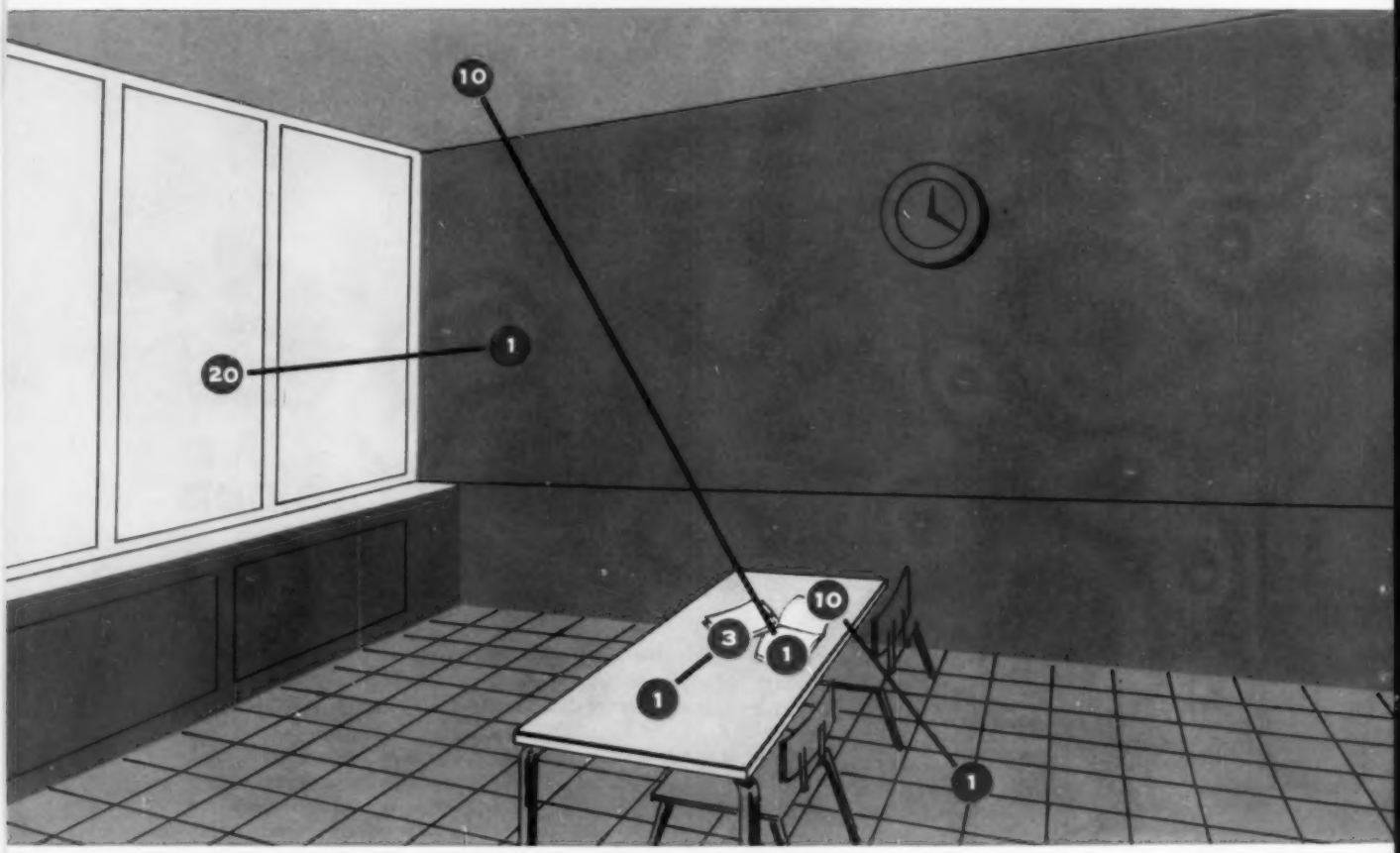
THE BRUNSWICK-BALKE-COLLENDER COMPANY
623 South Wabash Avenue, Chicago 5, Illinois

An increasingly important factor in choosing floors . . .

LIGHT REFLECTIVITY

Today, there is a growing awareness on the part of industry, schools, hospitals, and other institutions—and even the home owner—of the vital importance of good lighting. More and more attention is being given to fenestration and artificial illumination. At the same time, more and more emphasis is being placed on the choice of surfaces inside the room, since these reflect the light and affect its brightness and quality. Because the floor is such a dominant element in an interior, the percentage of incident light reflected by it has a great effect on seeing conditions—and hence is very important to the architect. Two factors determine the light reflectivity of a floor—its color and the amount of surface gloss.

Color. While it is, of course, generally true that light colors reflect more light than dark colors, it should be kept in mind that the human eye is more sensitive to some colors than to others. A person with normal color vision is most sensitive to a wave length of about 570 millimicrons – a greenish yellow in approximately the middle of the visible spectrum – and sensitivity falls away toward both the red and violet ends of the spectrum. Because the great majority of resilient floors are made of combinations of different colors, however, they offer wide opportunities for selecting patterns that are suitable to both the decorating scheme and the visual requirements of a specific area.



In certain areas where close work is done, such as school classrooms, offices, and laboratories, the importance of proper lighting cannot be over-emphasized. The above diagram illustrates the recommendations of the Illuminating Engineering Society for comfortable seeing conditions in schoolrooms. The maximum brightness ratios between various surfaces are as follows:
Between the task and adjacent surfaces—3 to 1
Between the task and the floor—10 to 1
Between the task and the ceiling—1 to 10
Between the windows and adjacent surfaces—20 to 1

Armstrong FLOORS

LINOLEUM PLAIN · JASPÉ · SPATTER® · TEXTELLE® · DECORAY® · RAYBELLE® · ROYELLE® · MARBELLE® · TOWN HOUSE® INLAID · CRAFTLINE® INLAID · EMBOSSED INLAID · STRAIGHT LINE INLAID

Gloss. In addition to color, gloss also has some effect on the light reflectivity of a floor—a high-gloss surface will have a lower light reflectance than a matte surface. This is illustrated by the diagrams shown at the right.

Figure I shows that a matte surface reflects light in all directions. A high-gloss surface, on the other hand—as shown in Figure 2—reflects most of the light in the direction of specular reflection, and a relatively small amount in the direction in which the light reflectance measurement is made. If this material is viewed at the angle of specular reflection, it will appear very bright. However, what actually will be seen is a more or less distinct image of the source of illumination combined with the light reflected by the pigment particles of the material.

For this reason, the surface gloss of a material affects not only its light reflectivity, but its color value as well. The colors in a high-gloss waxed and polished floor will appear somewhat darker than the same colors in a material with a matte finish. This is especially true of the darker colors. For example, the black in Armstrong Imperial Black Custom Corlon Tile, No. 462, with its high gloss, appears to be much darker than the black in Armstrong Ebony Asphalt Tile, No. B-905, which has a lower-gloss surface—yet both products have, basically, the same black pigments.

Apart from its effect on the light level of the room, gloss has a considerable influence on the appearance of the finished floor. Very glossy flooring materials tend to show up minor irregularities in the subfloor surfaces. Imperfections that may not be noticeable in the bare subfloor become obvious when the resilient floor has been installed. **Very glossy materials, therefore, require careful subfloor inspection and preparation in order to insure the best appearance. Extra maintenance care also is required.**

Free Light Reflectivity Chart (1956 Edition)

To aid architects in the selection of a proper floor, the Armstrong Cork Company has prepared a table of light reflectivity values of its various flooring materials, corrected for the color sensitivity of the human eye. These values range from a high of 55% for Granette Corlon, Pattern No. 6107, to a low of 2.2% for plain black rubber tile. Between these two extremes lie more than 300 different colors and color combinations in various Armstrong floors, so that by referring to this chart, architects can easily select a resilient floor that fits their specifications perfectly. To obtain the latest revised edition of this chart, write Armstrong Cork Company, 1605 Watson Street, Lancaster, Pennsylvania.

FIG. 1

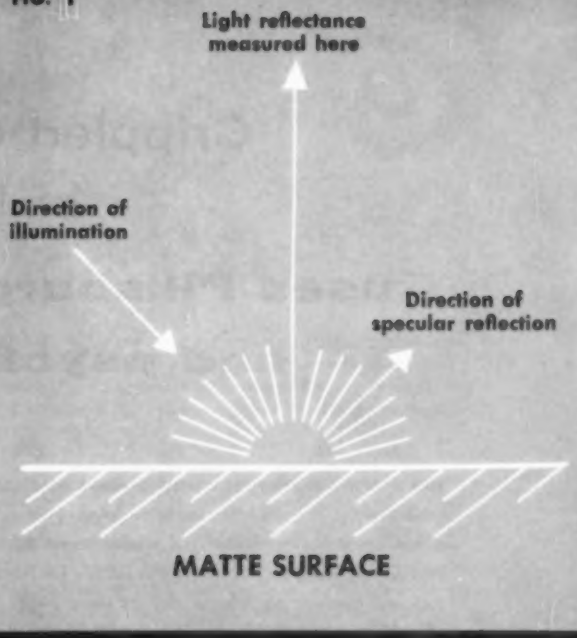
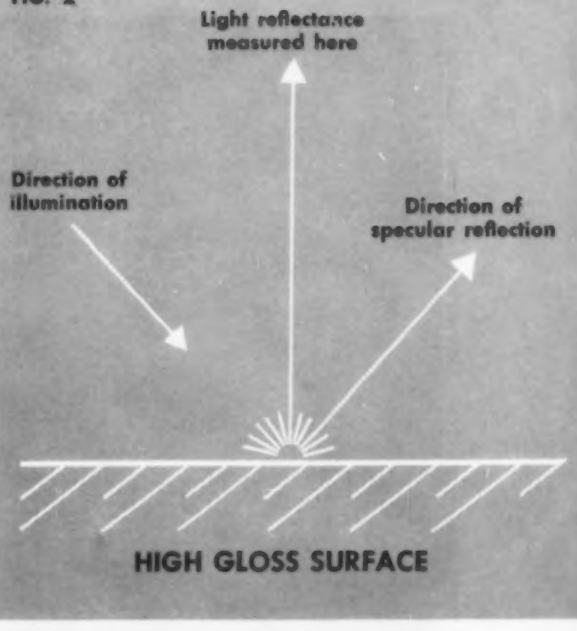


FIG. 2



ARMSTRONG CORK COMPANY makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer architects impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection. Armstrong Architectural-Building Consultants throughout the country are glad to assist architects and make specific recommendations for individual jobs. Your Armstrong representative has a wide variety of experience and training in resilient flooring. He can also call upon the Armstrong Research and Development Center and the Armstrong Bureau of Interior Decoration for assistance. For helpful information on any flooring question, call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pennsylvania.

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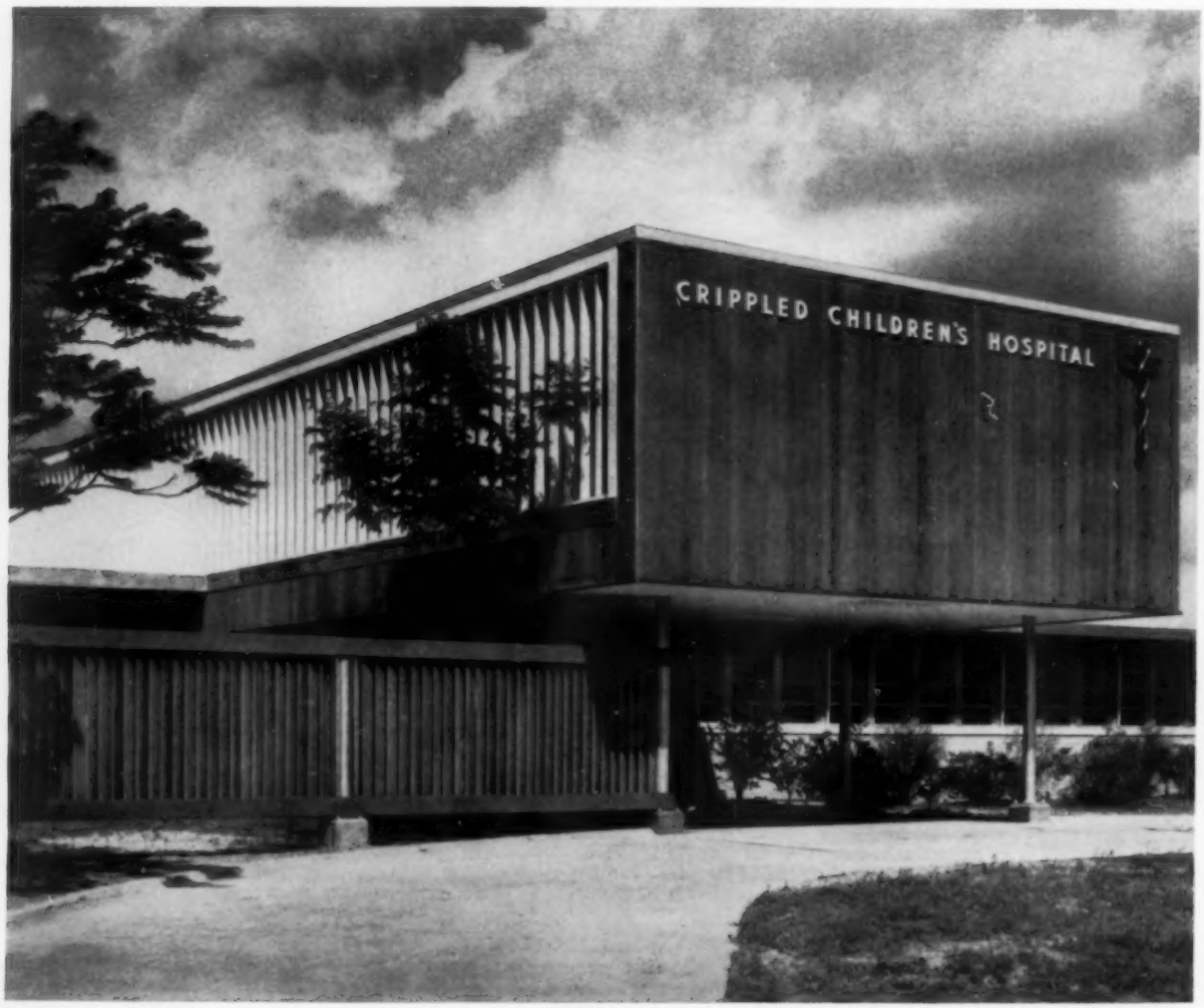
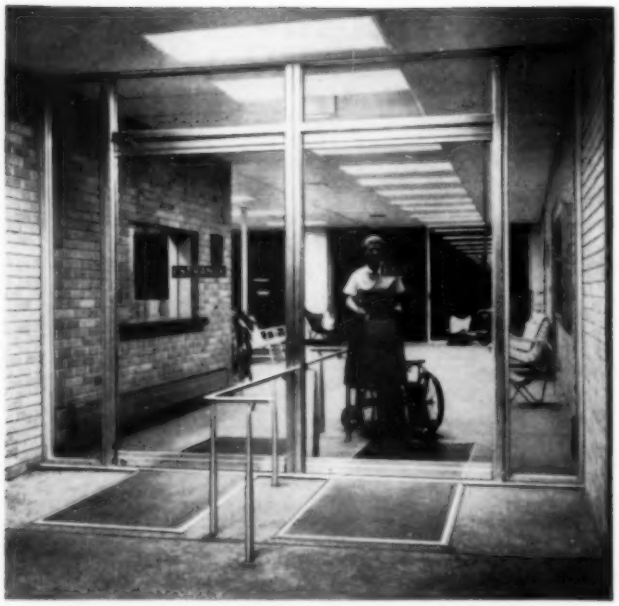
Crippled Children's Hospital in New Orleans

uses Pittsburgh Glass for functional and psychological purposes

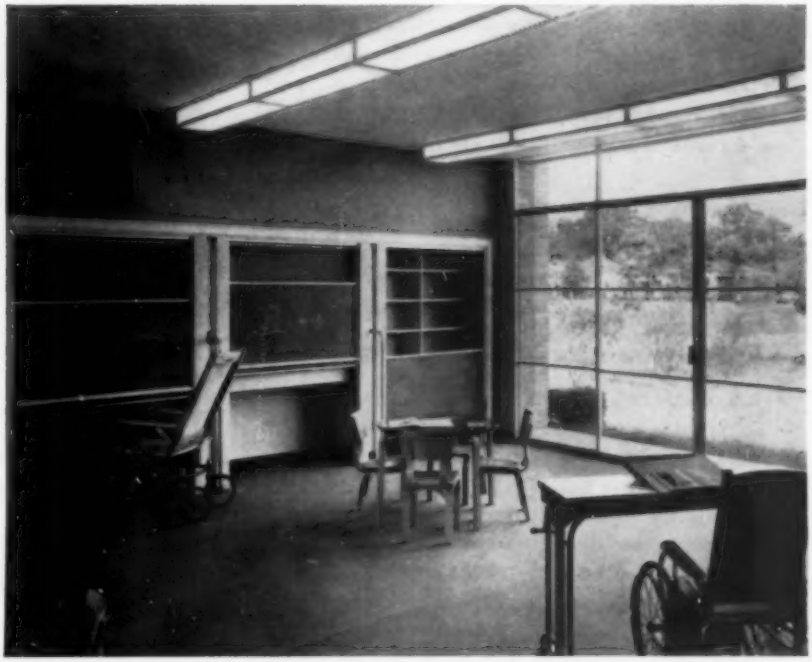
THIS HOSPITAL IS THE FIRST IN NEW ORLEANS, LOUISIANA, devoted exclusively to the rehabilitation of crippled children. Marked by advanced planning, design and construction, this modern institution provides every conceivable feature for the safety, comfort, and quickest possible recovery of the patients. Pittsburgh's Solex® solar-heat-absorbing, sun-glare-reducing glass helps to keep interiors cooler and more pleasant, as does Pittsburgh's Twindow® – the windowpane with insulation built in. Other Pittsburgh products installed here include Herculite® and Tubelite® doors, Pittcomatic® automatic door openers, Pittco® De Luxe metal, and copper back mirrors. Architects: Ricciuti Associates, New Orleans, Louisiana.





HERCULITE DOORS, equipped with mat-operated Pittcomatic hinges —"the nation's finest automatic door openers"—were selected for the main entrance. These doors make possible extreme ease of operation, with maximum safety—features of the greatest importance to the crippled child.

IN THIS COLORFUL CLASSROOM, a wall of Pittsburgh Polished Plate Glass admits the outside view to produce a more cheerful and brighter interior. Experts agree that "walls of glass" offer many psychological benefits to the children. The installation of sliding glass walls in many of the rooms provides easy access to the attractive outdoor patios, where the children may dine or play in complete privacy.



Your Sweet's Architectural File contains detailed information on all Pittsburgh Plate Glass Company products...Sections 7a, 13e, 16a, 16d, 21.

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(slag or smooth surfaced)

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Aquadam offers these important advantages:

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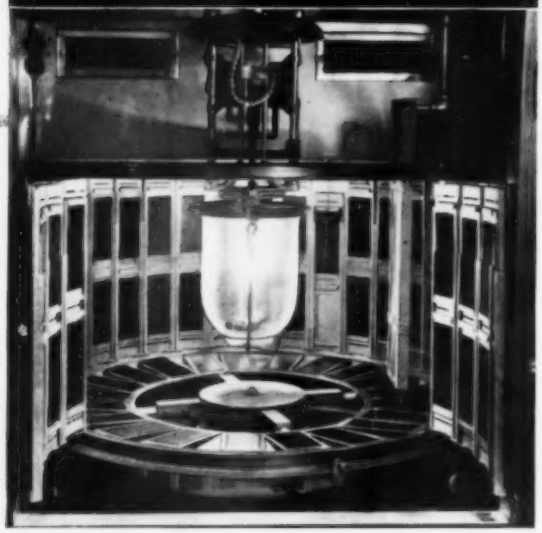
Tests prove Aquadam's superior weather resistance!



J-M's Accelerated Weathering Test subjected samples of dead level bitumens to repeated radiation, water spray and refrigeration. Results: Aquadam has approximately twice the ability of typical asphalts to retain its initial properties on exposure.

J-M Aquadam proved superior by actual test... helps provide longer roof life at no extra cost

Johns-Manville Aquadam is specifically designed to provide maximum built-up roof service for deck inclines from dead level to ½″ per foot*.

J-M Aquadam Built-Up Roofs owe their proven superiority to the newly developed bituminous asphalt cementing agent Aquadam—which is used in the application of the roofing felts.

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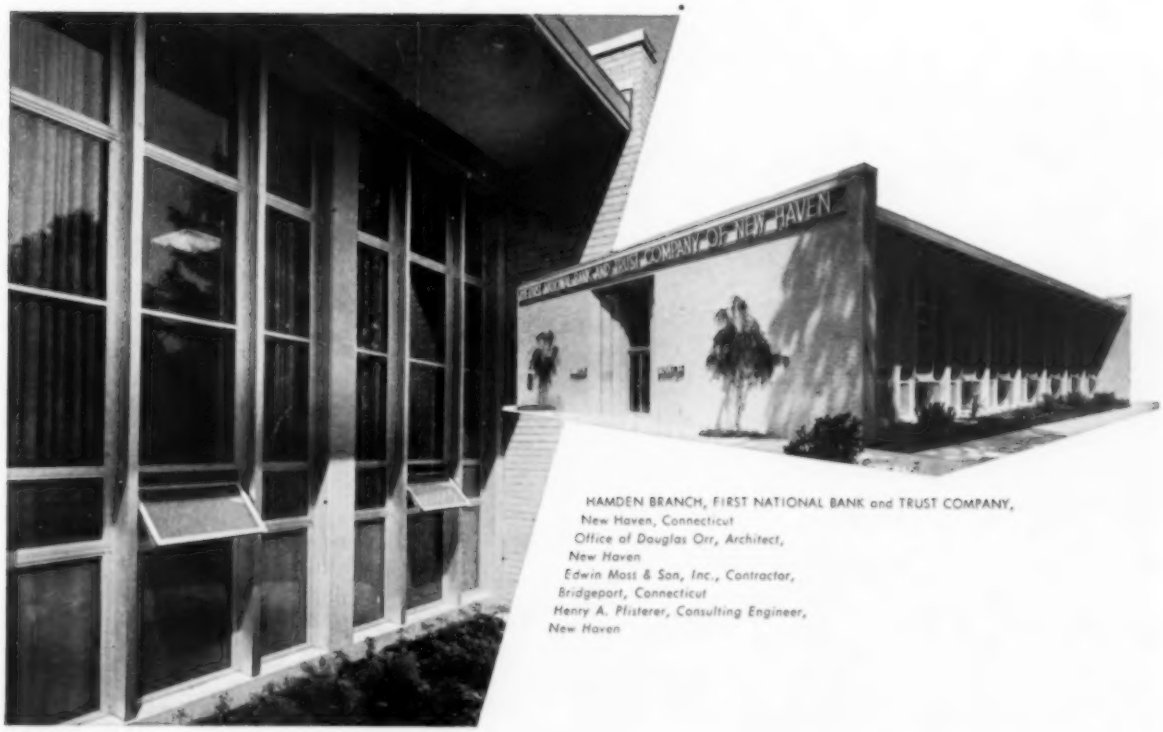

HAMDEN BRANCH, FIRST NATIONAL BANK and TRUST COMPANY,
New Haven, Connecticut
Office of Douglas Orr, Architect,
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(A)
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Available with (A) regular arm or (B) holder arm
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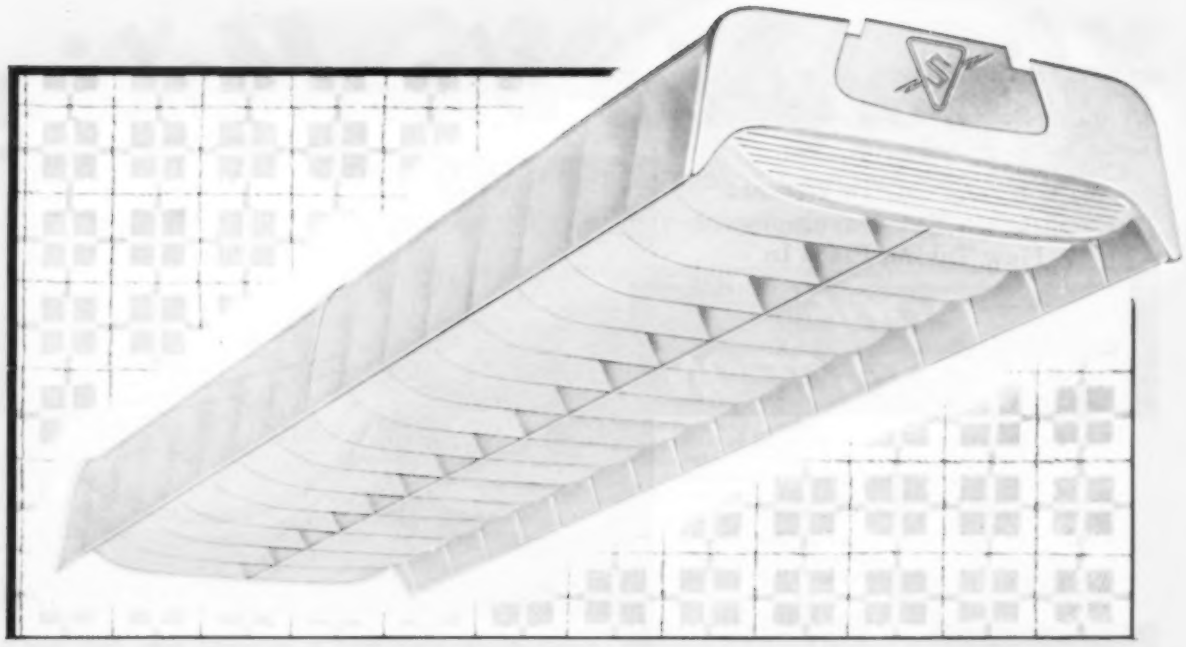

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Now in eye-rest green

to bring you new dimension in lighting design

TODAY; *color* makes the headline news in lighting design! And this new version of the famous Scott all-luminous fixture by Sylvania—with Eye-Rest Green color blended into its all-plastic shielding—adds the exciting new dimension of *color* to the traditional dimensions of *quality* and *quantity* of lighting.

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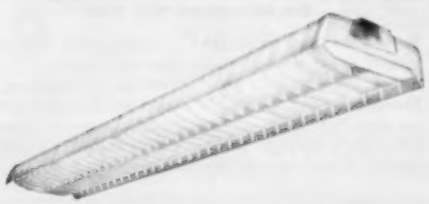

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History-in-the-Making

Take Time Out To Witness Remarkable New Developments Now Taking Place In

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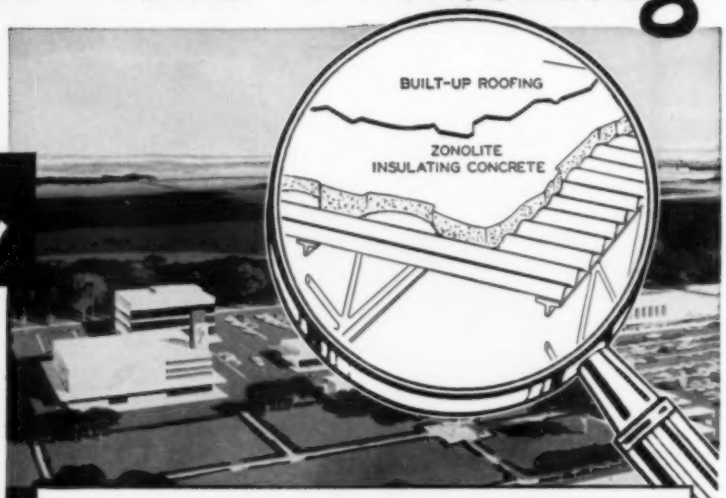

Important new development in corrugated metal deck. Here is artist's conception of Great Southern Shoppers Mart, Bridgeville, Pa. *Zonolite Concrete was poured in place over corrugated metal. Zonolite pours on fast,* cuts labor costs. Reduces insurance premiums as much as ½. Seamless, monolithic construction protects against "tar-drip" should fire originate in under-areas. Mail coupon for free booklet.

Arch.: C. Melvin Frank

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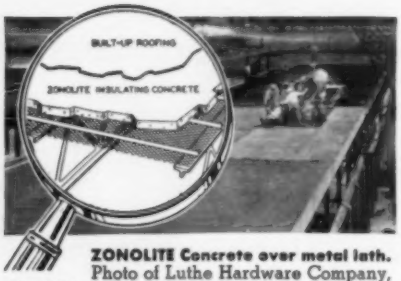
ZONOLITE Concrete over formboards. View of Commission Row Produce Market, St. Louis, Missouri. 326,000 sq. ft. poured for this seamless, permanent roof deck. High insulating value.

Arch.: L. Roy Brown & Assoc., St. Louis



ZONOLITE Concrete over metal lath. Photo of Luthe Hardware Company, Des Moines, Iowa. Fireproof deck was poured in place, cutting days off production schedule.

ZONOLITE Concrete over paper-backed wire lath. Campbell High School, Smyrna, Georgia. Zonolite roof deck cannot burn; provides the high degree of fire safety required.

Arch.: Bothwell and Nash

ZONOLITE Concrete over metal deck. Picture of Phoenix Public Library, Phoenix, Ariz. 2½ inches of Zonolite Stabilized Concrete Aggregate; 1:6 mix. An insulating, fireproof, rotproof deck.

Arch.: Alden B. Dow

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the all-in-one roof slab

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Prudential Bldg., Chicago
Architects: Naess and Murphy

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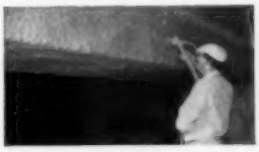

Prudential Building. *Zonolite Plaster machine-applied to beams for fireproofing.*

Ford Motor Company Administration Building. *50,000 yds. of Zonolite Plaster machined on.*
Arch.: Skidmore, Owings & Merrill

Beverly Hilton Hotel, Beverly Hills. *Zonolite Plaster Fireproofing. Zonolite Acoustical Plastic.*
Arch.: Welton Becket & Assoc.

ACOUSTICAL PLASTIC FIREPROOFING!

Now, for the first time, 4-hour fire ratings are being achieved by machine-applying Zonolite Acoustical Plastic *direct to underside of steel floors.* You gain 7" per story, eliminating 1 story of dead-space for every 14-stories of construction. *Right:* Harvey Department Store, Nashville, Tenn. Zonolite Acoustical Plastic Fireproofing applied to steel.

Arch.: Marr & Holman

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Wherever noise is a nuisance, Zonolite Acoustical has the coefficient required to "deaden" it—applies to any clean, firm surface, flat or irregular, by hand or machine. *Right:* Army Finance Center, Ft. Benjamin Harrison, Indiana.

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Right: First Security Bank Bldg., Salt Lake City.
Arch.: Bank Bldg. Corp. of America, St. Louis

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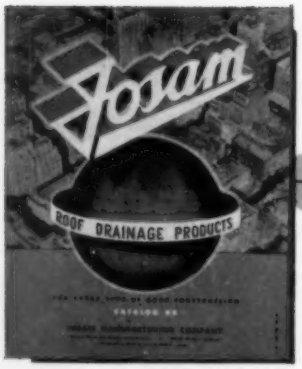
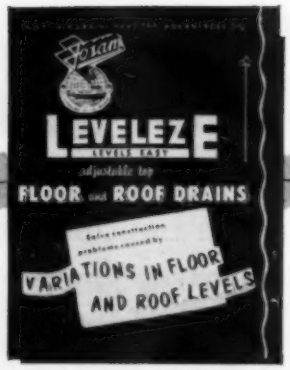


4. Catalog "RK" the complete authority on roof drainage products.



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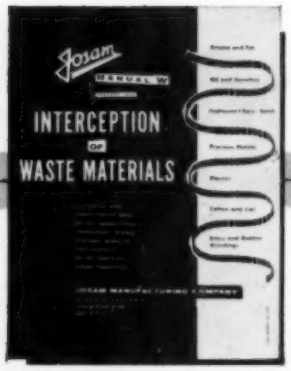

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2 WAYS TO FIND

With the problems of plumbing drainage and waste control becoming more complex every day, everyone who designs, specifies, installs or inspects a plumbing drainage system should have a library of the latest Josam literature.

1. Knowing where to find the answers makes it easy for you to select the right drain, interceptor or other plumbing drainage product. Hundreds of difficult, complex and time consuming problems are solved quickly because each Josam Manual or Catalog covers a particular class of product in detail, to make the specifying or installing job easier and quicker.

The information contained in this literature is authoritative . . . basic . . . factual . . . based upon Josam's leadership in the field and over 45 years of experience with plumbing drainage products in all types of buildings.

Josam
STANDARD OF THE WORLD

JOSAM MANUFACTURING COMPANY

General Offices and Manufacturing Division

MICHIGAN CITY, INDIANA

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West Coast Distributor
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San Francisco, California

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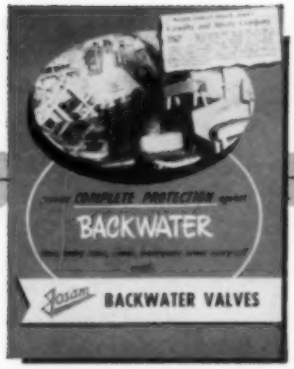
JOSAM CANADA LIMITED
Toronto, Canada

7. Manual "S" describes causes and cure for water hammer in supply lines.



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everything you SHOULD know about PLUMBING DRAINAGE PRODUCTS

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2. The other method of assuring the right plumbing drainage product for the job, is to consult the Josam representative in your territory. From his practical and engineering knowledge and years of experience, he can quickly recommend the proper product for your need because Josam makes the most complete line of plumbing drainage products in the industry. You'll find the name and phone number of your nearest Josam representative on all Josam literature.

If your files don't contain any or all of this helpful Josam literature, check coupon below and mail today. It's another Josam service designed to make your job easier!

10. Catalog "GS" describes Drainage Products approved by U.S. Government for all branches of service.

11. Check Chart of Locations for quick and complete selection of the proper products for all locations.

12. Manual "MP" Marine products approved by U.S. Maritime Commission.

JOSAM MANUFACTURING COMPANY • Dept. PA Michigan City, Indiana

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2. ☐ Manual "SK"
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4. ☐ Catalog "RK" on Roof Drains
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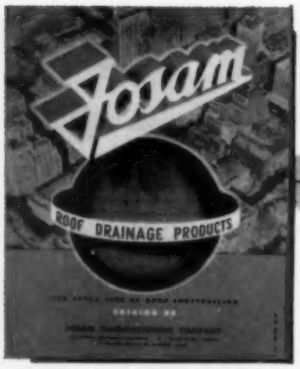
FIRM .....

NAME ..... TITLE .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....



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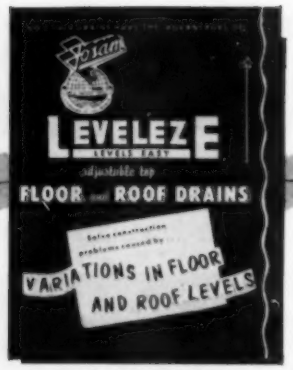

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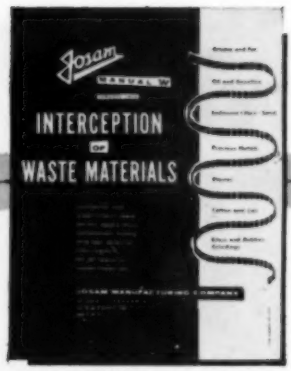

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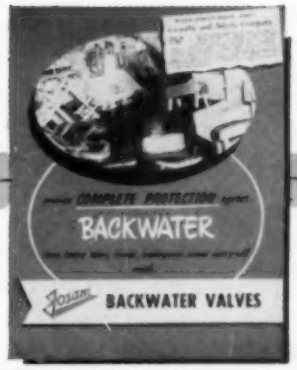

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FIRM .....

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New Pittco NO. 90 Awning Bar

. . . combines beauty and function. The photograph shows how the profile creates a pleasing balance of light and shadow. The Pittco No. 90 Awning Bar will give added character to a store front, window or entrance. Factory or field fabricated. For complete information, see your Store Front Detail Book.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Fiberglas Design Portfolio

OPEN PLAN HOMES

How to "Comfort-Condition"

the OPEN PLAN HOME

for greatest heating efficiency in winter... coolest living in summer!

With its outstanding physical advantages, the open plan home represents one of the most important trends in modern residential design. It adds a new, sweeping spaciousness . . . makes even limited areas seem roomier and more extensive. By borrowing space from *outside*, it adds extra liveability *inside!*

But there are objections to the open plan home—especially when it comes to heating and cooling. To assure winter warmth and summer coolness, special design principles must be closely observed. If these precautions are followed, the open plan home can be heated and cooled efficiently and economically.

In fact, in Minnesota—where the outside winter temperature skids to 20° below—one builder is heating his 1,250-sq. ft. open plan homes for as little as $84 a winter! And in 100 cities across the country, Owens-Corning Fiberglas® is now conducting tests to prove that the average home, if adequately insulated, can be heated and cooled all year round for *$120!*

SUMMER DESIGN also solves the winter problem

—— if the Open Plan Home is insulated with . . .

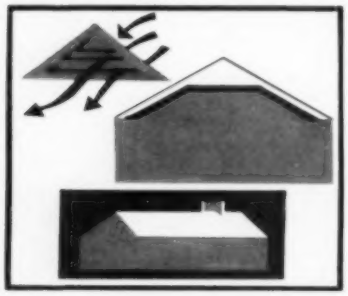
Winter or summer, the job of insulation is the same . . . *to prevent excessive heat flow through walls and ceilings!* Actually, the load caused by air temperature differences is approximately the same, winter or summer. But since sun heat load of roofs is an added consideration in summer—and since the cost of *cooling* exceeds the cost of *heating*—the summer problem ranks most critical. Therefore, proper design for *summer* comfort will assure maximum winter protection *anywhere!*

The winter heat problem varies geographically. But strangely enough, the summer heat problem is about the same *everywhere*. Based on U. S. Weather Bureau records for July, the average daily sun load falling on a flat surface is about the same in southern states like Alabama and Louisiana, as it is in northern states like Maine, Minnesota and Washington! Regardless of location, a 1,000-sq. ft. roof is exposed to almost 2 million B.T.U.'s daily. To offset this problem in the design of open plan homes, consider these factors:

START WITH THE ROOF:

In summer, sun load is worse on roofs than on any other part of the home. In winter, roofs account for up to 25% of the heat loss.

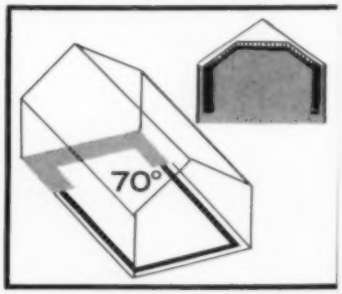
The solution: Good design; good ventilation; and *maximum insulation!* Heat-flow tests show the best year-round performance is with adequate thicknesses of insulation combining aluminum foil, to reflect radiated heat, with a mass material like Fiberglas, to reduce heat flow. Specially recommended: new Fiberglas *Foil-Enclosed* Insulation to reduce heat *gain* in summer and heat *loss* in winter to a minimum. Ventilation of attic spaces removes heat, improves performance.



THE WALLS:

In open plan homes, where large proportion of wall areas are glass, the solid walls *must* b insulated with great care. While walls receiv less sun heat than the roof, there is still a 1 to 20° temperature difference between *insid* and *out*side air. In winter, good insulatio keeps walls warm, removes the "discomfo zone" present along poorly-insulated wall

The solution: Use insulation to cut dow the flow of transmitted heat. Here, standar Fiberglas Insulation with a kraft paper vapo barrier serves well to cut heat loss or gair *Foil-Enclosed* Insulations add extra valu Maximum thicknesses provide best result



OWENS-CORNING

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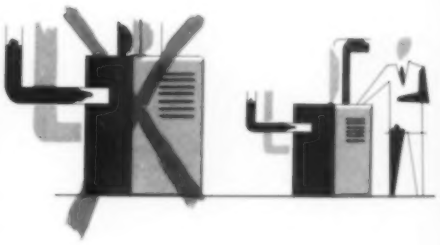
T.M. REG. U.S. PAT. OFF.

How Insulation Serves in Comfort Conditioning



SAVES MONEY ON EQUIPMENT! Insulation saves money immediately by reducing the cost of the heating and cooling plant. With B.T.U. heat loss or gain reduced, unit sized pipes, ducts and other equipment can be cut down. Reduction in unit size can save up to three times the cost of insulation. Maximum insulation helps bring insulation first cost within the range of more buyers.

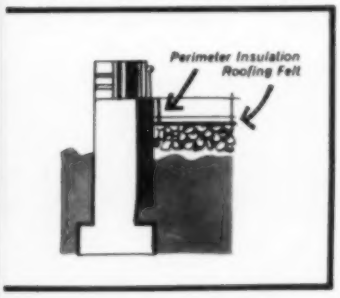
SAVE UP TO 58% OPERATING COSTS! By insulating with maximum thicknesses of Fiberglas Insulation, up to 58% can be saved on air conditioning operating costs! Smaller units cost less to operate and run for shorter lengths of time. And the savings in *winter heating* costs further help return the insulation cost to the owner.

IT'S LIKE GETTING A ¾-TON AIR CONDITIONER FREE! Insulating the open plan home with maximum thicknesses of Fiberglas Insulation instead of minimum thicknesses will keep out as much sweltering summer heat as a ¾-ton air conditioner can remove! Even without air conditioning, this brings comfort. And with maximum insulation, air conditioning can be added later at lowest cost.

'HE FLOOR PROBLEM:

ı summer, heat gain poses a problem where ucts run in slabs. In winter, uninsulated slabs ıse heat from the edge. Such slabs are cold ıd uncomfortable and may cause moisture ı condense and stain floors, start rotting or ıosen floor-covering adhesives.

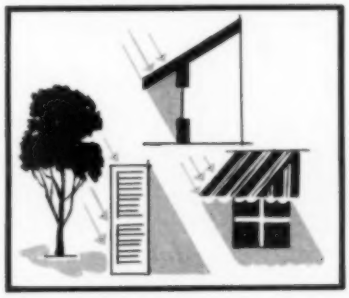
'he solution: In slab homes, an effective erimeter insulation such as Fiberglas Perimer Insulation is vital (National Warm Air leating and Air Conditioning Association sts such insulation as *essential* if air conditioning ducts are part of the slab.) Crawl ıace walls call for Fiberglas Perimeter Insution, plus a ground cover of roofing felt.



WINDOWS ARE TROUBLE SPOTS:

Glass admits sun and air heat—and winter cold—many times faster than even uninsulated walls. Thus the problem becomes critical in open plan homes with extended glass areas.

The solution: Double-glass, insulating glass, or storm windows cut heat transfer as much as 50%. Whenever picture windows are used, specify beautiful, translucent Fiberglas draperies to reflect radiated sun heat! Orientation of large windows away from the south and west helps keep off sun heat. Artificial exterior overhangs or awnings of Fiberglas-reinforced plastic are very helpful.



Fiberglas Design Portfolio

OPEN PLAN HOMES

REMEMBER THESE MATERIALS...

...*for extra comfort, beauty and economy in* OPEN PLAN HOMES

Fiberglas Draperies do more to meet the demands of modern living in open plan homes than any other fabrics. They are the most care-free decorative fabrics on the market . . . completely washable, never need ironing, can't shrink, stretch. Absolutely fire-safe, too!

Fiberglas Screening—the fabulous new screening that's rust-proof, bulge-proof, fire-safe, won't stain, never needs painting. Specify it for patios, porches, Bermuda houses, and in screens for the prime or combination windows for the homes you design.

Fiberglas-Reinforced Paneling . . . colorful a translucent . . . lets you select the light transmission y require! Extra-strong, but extra easy to use. Reco mended for room dividers, partitions, wall panels, roo patio coverings, wind breaks and awnings.

Fiberglas Duct Insulation (1) prevents excessive heat gain in ducts; (2) silences the sound of air movement; (3) prevents condensation on cool ducts. Fiberglas makes a complete line of duct insulations—rigid or flexible, faced, sprayed, or uncoated.

Fiberglas Dust-Stop® Air Filters are key factors in assuring comfort and cleanliness in forced air conditioners. Dust-Stops are extra efficient because they trap dust, dirt and pollen *all through the filter* . . . not just on the surface.

Fiberglas Acoustical Tile keeps the home qui peaceful, restful. Absorbs up to 80% of unwanted noi Comes in a variety of patterns and colors that match a decorative treatment. Economical, easy-to-install Fib glas Acoustical Tile is fire-safe, dimensionally stab

Fiberglas Insulations—in a variety of forms—meet every insulation need:

Foil-Enclosed batts and blankets—for maximum year-round performance in ceilings. (2" and 3" thickness).

Standard batts and blankets—for walls and areas where foil-enclosed insulation is not required. (1½", 2" and 3" thickness).

Perimeter insulation—cuts heat loss, keeps slab floors warm, dry, comfortable.

FREE BOOKLET:

"Insulation design for the air-conditioned home"

This outstandingly helpful booklet covers the design problems of air-conditioned homes. Specially written with charts, diagrams and other valuable information.

To quote *House & Home:* Building professionals should obtain a copy of this booklet "the quicker the better if you have an air-conditioned house on your drawing board."

For your free copy, send your name and address to Owens-Corning Fiberglas Corporation, Dept. 63-E, Toledo 1, Ohio.

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let GJ HOLD DOORS for these busy people

a variety of silent, shock absorbing door holders for every hospital door

. . . doors leading to patient, emergency, operating, utility, x-ray, supply rooms and diet kitchens—every door through which the busy staff must pass.

GJ devices go into hold-open silently . . . absorb the shock of a hard opening push. They hold the door securely and yet the door can be released easily with a firm push or pull.

Let us send you this brochure of GJ hardware for hospitals—just write

Be sure it's GJ• the trouble-free hardware maintenance people prefer

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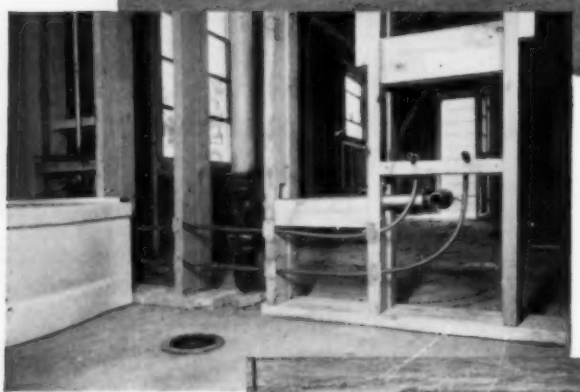
"WE SAVED $50



(Above) Typical bathroom hook-up with Revere Copper Water Tube. Note how the contractor, CLAY-POOL PLUMBING & HEATING COMPANY, used steel plates where tube crosses the two-by-fours. This permits tube to be placed in notched studs with ease and without sacrificing protection of the tube. Also, consider the time and number of joints and fittings saved by bending the soft copper tube in concealed locations like the one shown.

(Above) Here you see a 1½" Revere Copper Water Tube, Type "L" drainage line running from the kitchen sink before concrete slab was poured. Note how builder took advantage of the single, long, light, straight lengths of Revere Copper Water Tube . . . no extra joints, caulking or thread cutting here. In addition the builder had no fear of copper rusting when buried in the concrete slab. Revere Copper Water Tube also was used for service lines and internal water distribution.

Shown directly above is one of the homes erected by GRANT-HOLLADAY in Newcom Knolls, a suburb of Dayton, Ohio. These homes are prefabs with an option of 4 bedrooms or 3 bedrooms and a dining room. Lots average 60' x 125'. Full price is $10,750. This house is typical of the more than 1,100 which GRANT-HOLLADAY plans on erecting in Canton, Youngstown and Piqua, Ohio.

When you consider that GRANT-HOLLADAY saves $50.00 per home by using Revere Copper Water Tube and then multiply this saving by the 1,700 homes they have completed and plan to erect, you have a saving of $85,000! And that, Mr. Architect, Mr. Builder and Mr. Contractor, "ain't hay!"

If that kind of money can be saved in homes within this price range, think of the savings that can be realized when you get into the higher price brackets. That's why it will pay you to plan on copper in all your future homes . . . for underground service lines, hot and cold water lines, radiant panel heating, air conditioning, drainage, waste and vent lines. See your Revere Distributor. And if there is anything involving the installation of Revere Copper Water Tube that's bothering you, he'll be glad to put you in touch with Revere's Technical Advisory Service.

COPPER ★ BRASS ★ REVERE ★ ALUMINUM ★ 1801

Revere Copper and Brass Incorporated
Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.

Sales Offices in Principal Cities, Distributors Everywhere.

PER HOUSE by using *REVERE COPPER WATER TUBE* in our plumbing and drainage lines"

"To enable us to construct these houses in Newcom North and Newcom Park and sell them at the low sale price of $10,750 and still make a profit, it has been necessary to incorporate any and all time-saving devices available. With this pre-cut and pre-assembled type of construction, the use of copper with its ease and speed of installation was dictated. It soon became apparent that the $50.00 saving per house effected through the use of Revere Copper Water Tube, coupled with the added sales appeal, made copper the logical choice."

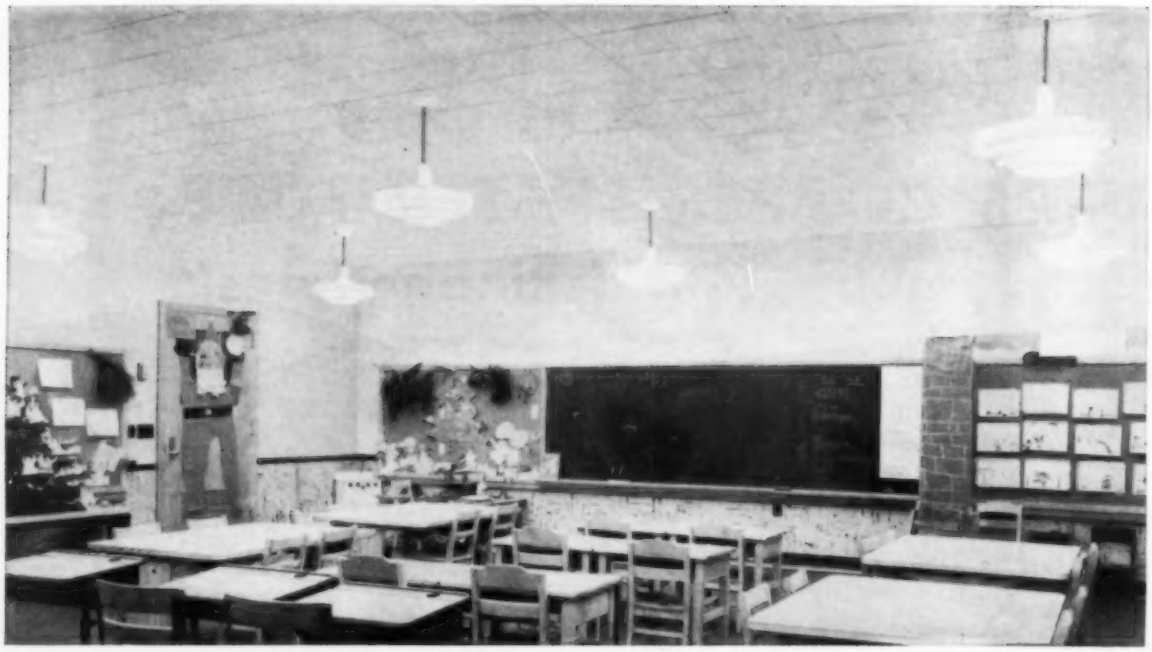
Says, Wallace F. Holladay, President
GRANT-HOLLADAY CORPORATION
Dayton, Ohio

"This business of contractors saying that copper is expensive to install is being disproved every day. Our experience has proved just the opposite. Copper water tube not only does *not* cost more to install than rustable materials, it actually costs less . . . in the case of these homes that GRANT-HOLLADAY built it was $50.00 less, *per home!* The reasons are obvious: solder fittings, fewer fittings, long lengths, ease of handling and bending, and the prefabrication of certain assemblies in the shop."

Says, Charles Claypool, President
CLAYPOOL PLUMBING & HEATING COMPANY
Kettering, Ohio

"We have furnished CLAYPOOL PLUMBING & HEATING COMPANY with approximately 160,000 pounds of Revere Copper Water Tube for the 1,700 homes that GRANT-HOLLADAY is building. Handling Revere Copper Water Tube is good for us, not only from a prestige standpoint, as contractors and builders know it is of the highest quality, but I've found that when Revere says they'll deliver on a certain date, they deliver . . . and that's mighty important to a distributor."

Says, R. J. Makarius, President
ACME PLUMBING SUPPLY COMPANY
Dayton, Ohio



North Eggert School, Eggertsville, New York • Architect Duane Lyman & Assoc. • Lighting designed by E. S. Burrows

A School Problem...IN LIGHTING*

To provide recommended levels of good quality illumination in a classroom with LOW CEILINGS

THE BASIC FACTS . . . Classroom shown above measures 29′ by 27′ by 9′ 3″ high. Surface characteristics are as follows: White ceiling, perforated acoustic tile—80% RF; Green walls, cinder block—55% RF; Natural wood trim—40% RF; Mottled gray, asphalt tile dado—25% RF; Dark green floor, asphalt tile—10% RF†; Black chalkboard—7% RF†; Natural wood desk top—50% RF; Light tan window shades—60% RF.

†*Dark floor and chalkboard not recommendations of American Standard Practice for School Lighting.*

***Data as reported in the February 1956 Issue of ILLUMINATING ENGINEERING**

Data submitted by Niagara, Mohawk Power Corp. shows that SILVRAY Concentric Ring Silvered Bowl Units can successfully solve problems of LOW CEILING SCHOOL LIGHTING

THE SOLUTION . . . Nine pendent mounted concentric ring luminaires (Silvray Lighting, Inc. Cat. No. 1500S/3R/5) using 500-w PS-40 inside-frosted silvered-bowl lamps were suspended 24″ overall, mounted 9′ on centers. Average general illumination two months after installation at desk top height measured 52 footcandles.

BRIGHTNESS RESULTS

LUMINAIRE (at 45°) Maximum	650 ft-L		
CEILING—Maximum	130 ft-L	Minimum	26 ft-L
FRONT WALL (between rows of luminaires)	12 ft-L		
(opposite rows of luminaires)	15 ft-L		
TRIM	10 ft-L	DADO	6 ft-L
FLOOR	4 ft-L	CHALKBOARD	2 ft-L
DESK TOP	25 ft-L	WINDOW SHADES	15 ft-L

For Correct School Lighting its always...

SILVRAY LIGHTING, INC.
AND ASSOCIATED COMPANIES
OFFICE: RKO BLDG., RADIO CITY, NEW YORK

The *heads-up* way to hang MENGEL DOORS

. . . . for maximum merchandising benefit

You hang Mengel Doors the same way you hang other flush doors. With one notable exception. Mengel Doors, you know, are now trade-marked with the famous 'Mengel-Man' symbol permanently doweled into the stile.

So it's good head-work to hang Mengel Doors with the 'Mengel-Man' *heads up*. That's the way the public is used to seeing the 'Mengel-Man'! And they've known him (and respected the quality he represents) for many years—in Mengel *Permanized* Furniture.

For your pride and protection—and your customers' too—show the 'Mengel-Man' trademark. Let its nationally advertised name and fame work for you. Door Department, THE MENGEL COMPANY, Louisville 1, Ky.

Mengel Doors equal or exceed the requirements of Bureau of Standards specifications CS200-55

TISHMAN BUILDING TEAM DEVELOPS NEW

EDGARDO CONTINI
Victor Gruen & Associates

Chief Engineer Contini says: "The Tufcor alternate was selected by the contractor over a conventional forming system, and we're certainly pleased with the way it came through. Instead of conventional forms for casting the building's 13 concrete slab floors, Tufcor was used. The result was a much cleaner job without a lot of shoring. And as we expected, valuable construction time was saved."

H. B. RIGHTMIRE
C. L. Peck Construction & Realty Co.

Project Manager Rightmire says: "Tufcor saved us two months over conventional forming systems. We had no delays for form stripping, and subtrades worked on the deck below when the deck above was laid. Placing the pre-cut, job-sized Tufcor sheets was a fast, easy operation. Special anchorages were provided because of seismic conditions. Our savings and speed with Tufcor were far better than we're able to get with conventional forming."

G. W. BAUER
C. L. Peck Construction & Realty Co.

Job Superintendent Bauer says: "We measured Tufcor against our experience with conventional forming every step of the way. Tufcor saved us quite a bit of clean-up time because there was so little leakage of wet concrete. And on concreting, Tufcor saved at least 60 days. We poured two floors one week, three the next—a floor every other day. We were able to organize crews so much better with no stripping to do and no uneven demands for labor."

IN LOS ANGELES:

New use of TUFCOR® saves two months construction time on new Tishman project

Replacing customary forming for concrete floor slabs, TUFCOR stays in place, eliminates removal of forms, speeds up concreting to a rate of one full floor every other day

If you've always thought of Granco's Tufcor *only* in terms of strong, fire-safe roof construction, the Tishman Building team's experience proves the profitable use of this tough-tempered, deep-corrugated steel form for floor slabs with spans up to 7 ft.

This noted team of designers and builders used 230,000 sq. ft. of uncoated 24-gage Tufcor as permanent, stay-in-place floor forms. Typical span was 6′8″ with a 3¾″ lightweight structural concrete slab. The tough-tempered, corrugated Tufcor sheets gave the finished slab high strength and safety well beyond ordinary requirements.

Tufcor out-performed conventional forming methods right down the line. Pre-cut Tufcor was easy to handle and went in faster, provided an immediate working deck for all trades, eliminated form stripping, reduced planking and shoring. Concrete placing was completed in an amazingly short time. *Over all, Tufcor keyed a 60-day faster construction schedule!*

Tufcor-formed floors may well be an equally profitable specification in many of your own projects. For complete information, estimates or costs on your building plan, consult Granco home or district office, Attention Dept. P-63; or, see our listing in Sweet's Catalogue.

USE OF TUFCOR, PRAISES ITS PERFORMANCE!

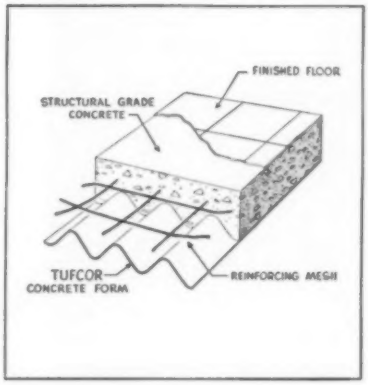
M. WEINGARTEN
Tishman Realty & Construction Co.

Builder's Representative Weingarten says: "Time means money on a construction job like this. The fact that Tufcor doesn't have to be removed once it's placed saved us a lot of time. It was only one of several ways Tufcor helped us keep costs down. Equally important, we'll start realizing tenant revenue earlier because of earlier completion of the building."

NOW UNDER CONSTRUCTION, the modern, new 13-story Tishman Building at 3325 Wilshire Boulevard in Los Angeles. *Architects-Engineers:* Victor Gruen & Associates, Los Angeles, California. *Owner:* Tishman Realty & Construction Co., New York, N. Y. *Contractor:* C. L. Peck Construction & Realty Co., Los Angeles, California.

The minute it's placed, Tufcor creates a safe, strong work platform.

How Tufcor formed floors in Tishman Building. Slab reinforced by wire mesh.



GRANCO

SINCE
GRANITE CITY STEEL
1878

GRANCO® STEEL PRODUCTS COMPANY

A Subsidiary of **GRANITE CITY STEEL COMPANY**

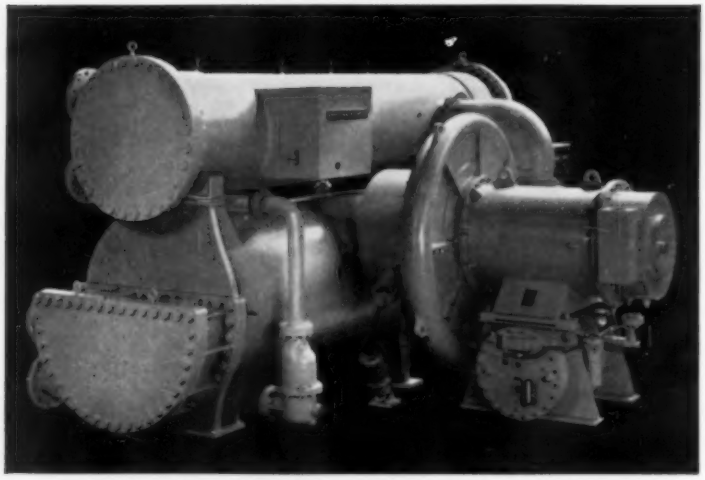
6506 N. Broadway, St. Louis 15, Mo., Executive Offices: Granite City, Ill.

DISTRICT OFFICES: St. Louis • Kansas City • Dallas • Chicago Minneapolis • Atlanta • Cincinnati

Distributors in 80 principal cities

Cuts cooling, installation, and maintenance costs!

SINGLE-STAGE TONRAC® INSTALLS ON ONE LEVEL



American Blower Tonrac automatically maintains chilled-water temperature, *regardless of load!* Requires no built-up bases.

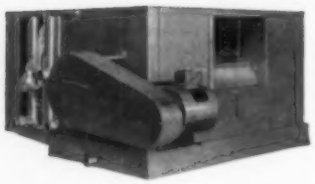
An advanced-design, hermetic centrifugal refrigerating machine – Tonrac comes complete, ready for installation on *one* level. No build-up bases, flexible couplings, or speed-increasing gears are needed: The single impeller is directly driven by a constant-speed 3600 rpm motor. Saves weight, space, installation costs!

Tonrac cuts operating and maintenance costs, too, for it achieves compression in *one* stage . . . allowing two-bearing construction, and eliminating compression losses and power waste that are common with multi-stage units. This single-stage, hermetic design – with its inherent simplicity and few moving parts – assures quieter operation: makes even the roof an ideal location for Tonrac!

For full facts, call our nearby representative. Or write direct for Bulletin 1426.

Packaged Air Conditioners for offices, stores, industrial plants, and similar applications. Cools without chilling. 3- thru 20-ton capacities.

American Blower equipment answers all your air conditioning needs



Central-Station Air Conditioners

Multi-Zone Air Conditioners

American Blower offers a complete product line, designed and engineered to meet the exact specifications of your air conditioning requirements. Call on us, today, and pinpoint equipment responsibility for your entire system!

American Blower products serve industry

- Air Conditioning, Heating, Ventilating Equipment
- Mechanical Draft Fans
- Industrial Fans and Blowers
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- Gyrol Fluid Drives
- Dust Collectors
- Refrigerating Machines

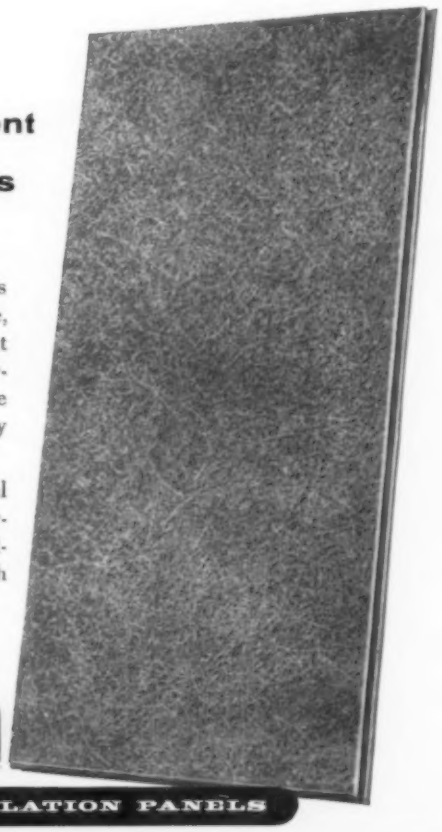
AMERICAN BLOWER CORPORATION, DETROIT 32, MICHIGAN
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO
Division of American-Standard

AMERICAN BLOWER

Air conditioning equipment for every business

● *For original construction and current additions...*

Sidewalls of Clark Equipment plant are insulated and made sound absorbent by tough, quickly erected Tectum Panels

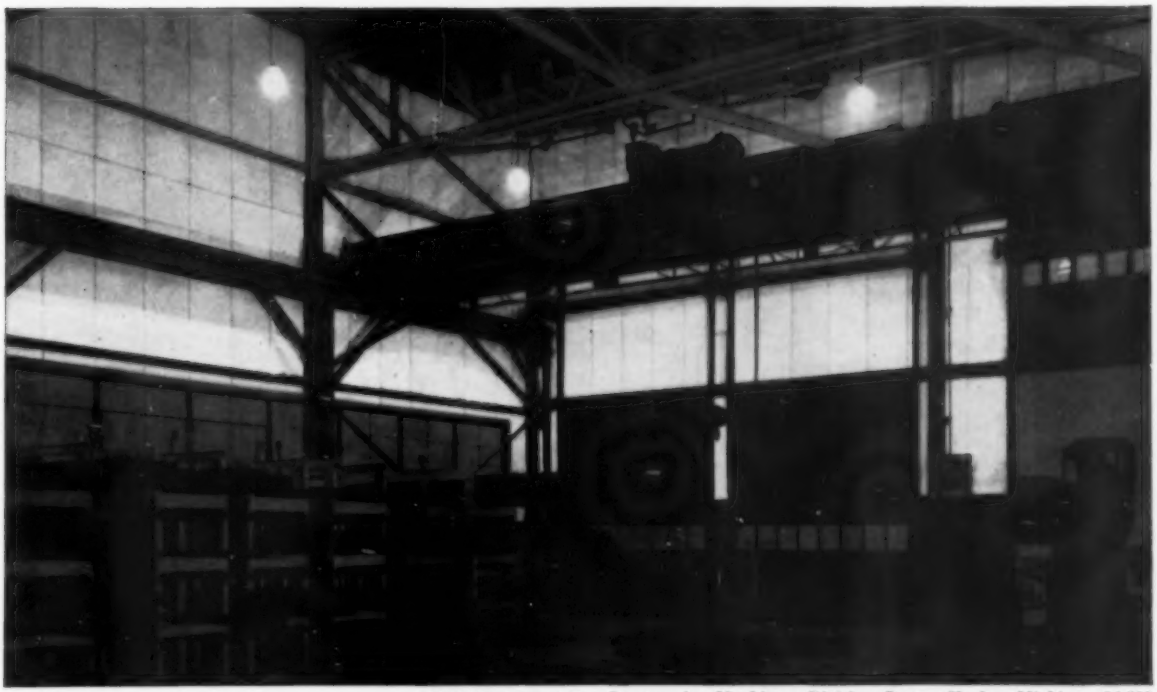


Nearly 90,000 square feet of Tectum Sidewall Insulation Panels are in place at the Benton Harbor Plant of Clark Equipment Company. Here, Tectum was specified for the original plant—and again specified for current additions. No wonder for this repeat order, though—Tectum not only furnishes necessary thermal insulation, but also sound control and an attractive finished surface. In addition, noncombustible Tectum provides an extremely effective fire barrier.

Lightweight Tectum Sidewall Insulation Panels, widely used for industrial and commercial buildings, can cut costs while improving quality and performance on your next building project. Specifications and details are available from Tectum Division, Peoples Research & Mfg. Co., 410 South 6th Street, Newark, Ohio.

Tectum

SIDEWALL INSULATION PANELS



Clark Equipment Co. *Construction Machinery Division, Benton Harbor, Michigan. 86,538 sq. ft. Tectum Sidewall Insulation Panels. Corrugated siding used for exterior surfacing.*

At last-
a truly Monumental
awning window

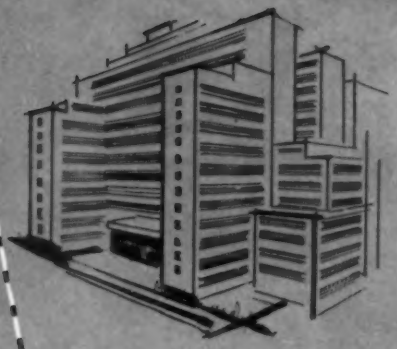
designed to meet your most rigid requirements

WARE

MONUMENTAL AWNING WINDOW

Combines classic beauty and rugged strength with the advantages of maintenance-free Aluminum.

Dimensions of Heavy Compound Operator are 5¼" x 3" x 2"



FEATURES OF DISTINCTION

- **PERFECTED WEATHERING** — Koroseal weatherstripping imbedded in extruded channel, perfect seating of ventilators with wide overlap in frame contact.
- **HEAVY EXTRUDED SECTIONS** — 1⅝" ventilator depth. Minimum thickness of all structural members ⅛".
- **ALL MOVING PARTS** bushed in self-lubricating nylon. All linkage tested for maximum load conditions.
- **EASE OF OPERATION** — Perfect balance and gear ratio permits finger tip control.
- **STRIP PROOF HEAVY COMPOUND OPERATOR** concealed in sill, synchronized distribution of load, unparalleled load safety factor for aluminum awning windows.
- **RIGID FRICTION FREE VENTILATORS** — Head of ventilator operates in individual track attached to frame jamb.
- **HARDWARE**—Solid white bronze attractively designed tilted crank for operating vents. Solid white bronze cam lock and latch for hopper vents.

Aluminum **WARE** *Windows*

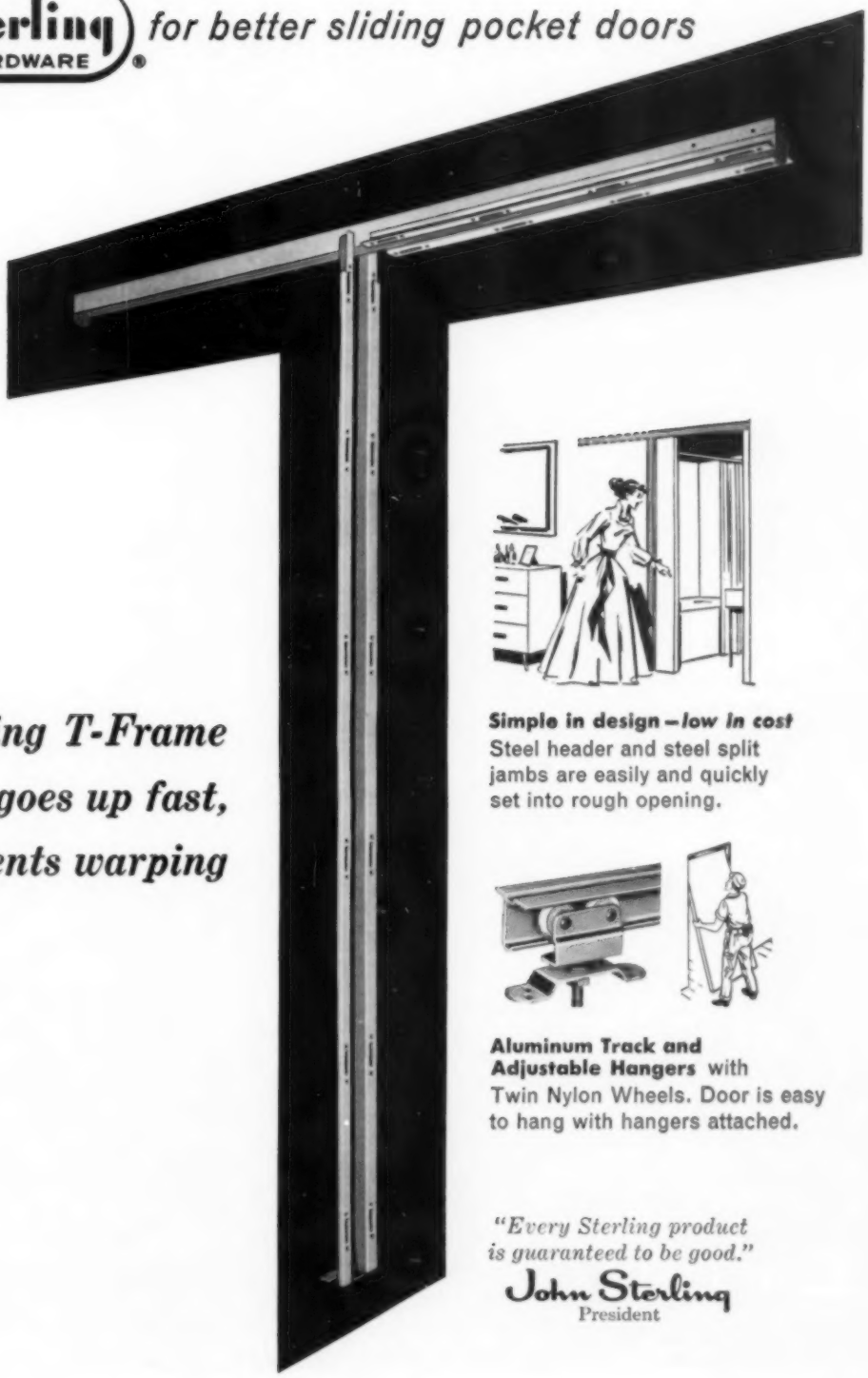
MONUMENTAL WINDOW DIVISION

QUALITY APPROVED A-A 2

WARE LABORATORIES, INC.
3700 N.W. 25th STREET,
MIAMI, FLORIDA

Write for specifications and detail drawings. Our engineering staff is available for your special window needs. Write Dept. P -5

Sterling HARDWARE® *for better sliding pocket doors*



Sterling T-Frame goes up fast, prevents warping

Simple in design—*low in cost*
Steel header and steel split jambs are easily and quickly set into rough opening.

Aluminum Track and Adjustable Hangers with Twin Nylon Wheels. Door is easy to hang with hangers attached.

"Every Sterling product is guaranteed to be good."
John Sterling
President

See our catalog in Sweet's or write for complete details today

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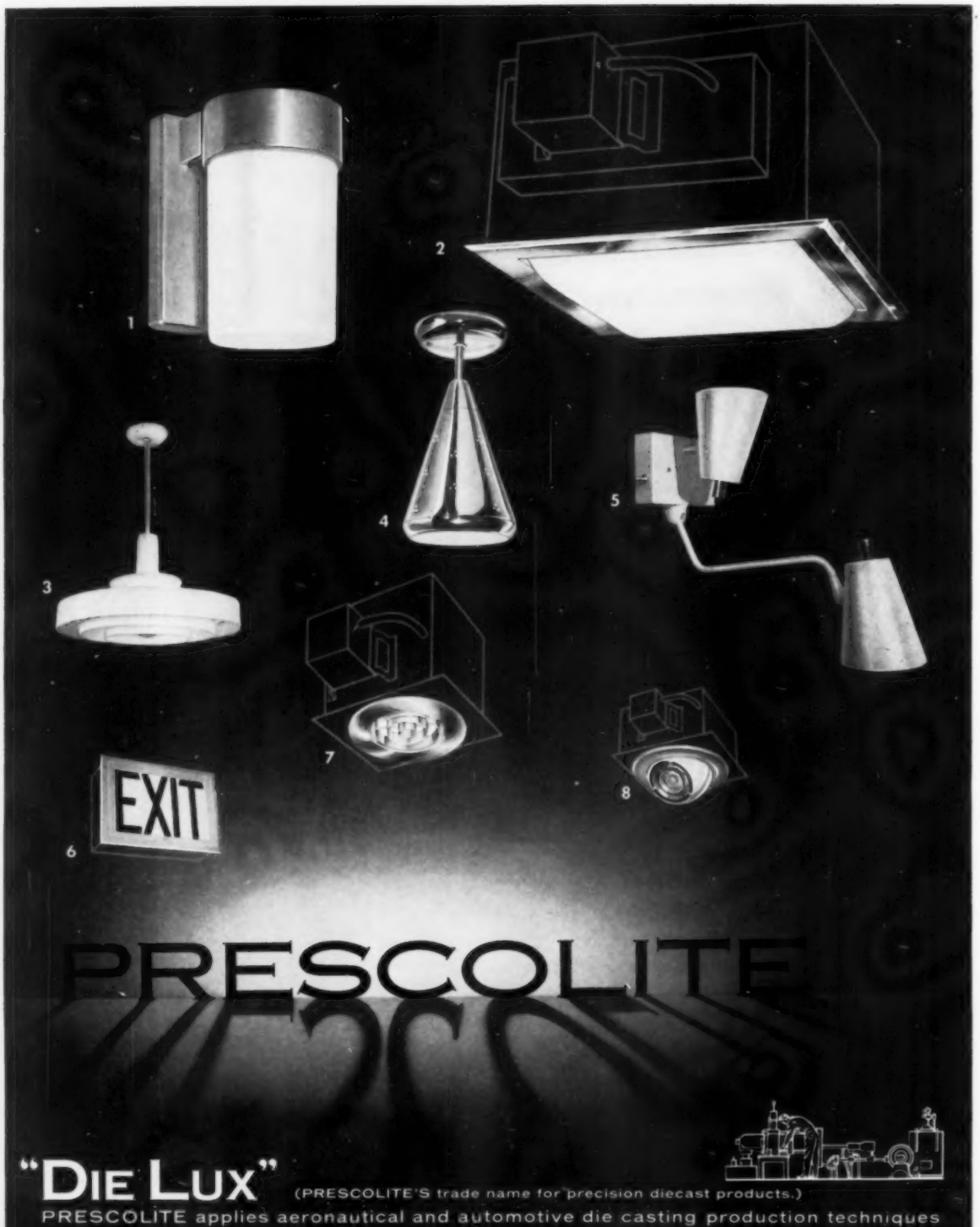


"DIE LUX" (PRESCOLITE'S trade name for precision diecast products.)

PRESCOLITE applies aeronautical and automotive die casting production techniques to the lighting industry for **STRENGTH • DURABILITY • APPEARANCE**

The fixtures illustrated above, and many more too, employ "DieLux" die castings as an integral part of the unit. 1. No. WB-24 Wall Unit. 2. No. 1313-6630 Recessed. 3. No. 500 Ring Fixture. 4. A-14 Swivel Unit. 5. No. 8585 Hospital Light. 6. No. R-54 Exit Light. 7. No. 750 Recessed. 8. No. 99 Eyeball Unit.

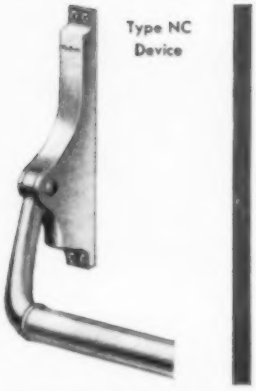
Write for your copies of the following PRESCOLITE literature: No. 9 (Recessed and Surface Fixtures), No. EX-1 (Exit Lights), No. LL-1 (Louver Lights), No. HD-1 (Swivel Lights), No. AE-3 (Drawings and Specs.)

PRESCOLITE Mfg. Corp., Main Office, 2229-4th St. Berkeley 10, California • Factories: Berkeley, California • Neshaminy (Bucks County), Pennsylvania

Von Duprin

FIRE AND PANIC EXIT DEVICES

Sturdy...Safe...Selected



Type NC Device

● Tough, enduring service goes hand in hand with smart modern design when you put Von Duprin Narrow Concealed Exit Devices on the job! Vertical rods are spring actuated, opening smoothly and quietly at a touch of the crossbar. Like all Von Duprin devices, they're precision engineered with the finest materials and construction, ready to absorb the heaviest service with only normal maintenance.

Tested *before* being marketed; proved by years of *on-the-job* service . . . the NC device is a sleek, reliable answer to "the safe way out!"

VONNEGUT HARDWARE CO. • VON DUPRIN DIVISION • 402 W. MARYLAND ST. • INDIANAPOLIS 9, INDIANA

Published in the interest of the Soft Drink Canners Association and the canning industry.

No headaches in these drinks!

Eliminate the hazard of broken bottles in your plant by providing your employees the safety and convenience of canned soft drinks.

Call your soft drink supplier and learn the many advantages of dispensing drinks the modern way—in cans.

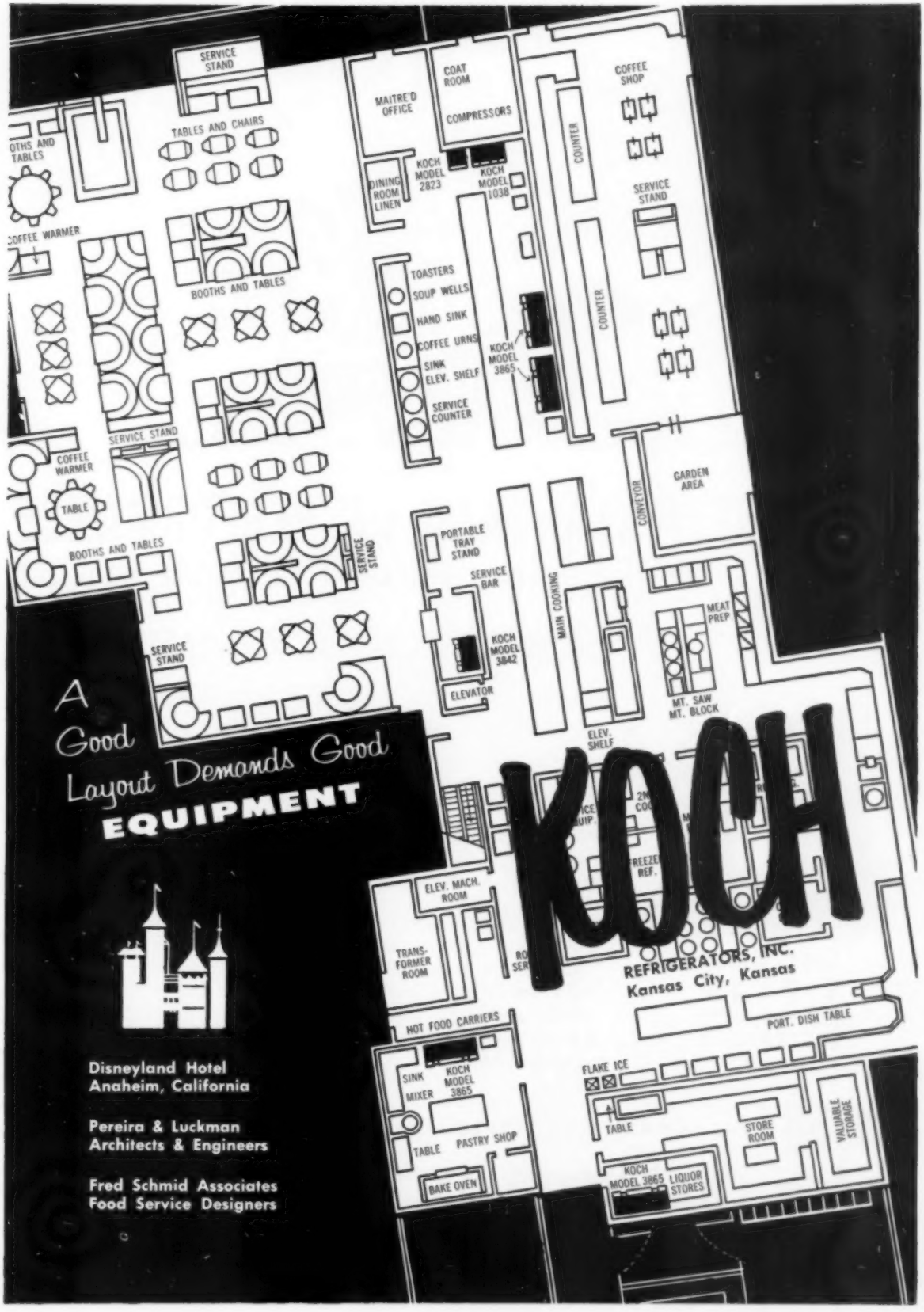
QUALITY YOUNGSTOWN SERVICE

Above are illustrated two of the modern cans for soft drinks, now available for in-plant use.

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

General Offices Youngstown, Ohio District Sales Offices in Principal Cities.

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS


SERVICE STAND
TABLES AND CHAIRS
BOOTHS AND TABLES
COFFEE WARMER
MAITRE'D OFFICE
COAT ROOM
COMPRESSORS
DINING ROOM LINEN
KOCH MODEL 2823
KOCH MODEL 1038
COUNTER
COFFEE SHOP
SERVICE STAND
TOASTERS
SOUP WELLS
HAND SINK
COFFEE URNS
SINK
ELEV. SHELF
SERVICE COUNTER
KOCH MODEL 3865
COUNTER
SERVICE STAND
COFFEE WARMER
TABLE
BOOTHS AND TABLES
SERVICE STAND
CONVEYOR
GARDEN AREA
PORTABLE TRAY STAND
SERVICE BAR
KOCH MODEL 3842
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MT. BLOCK
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A Good Layout Demands Good EQUIPMENT
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HOT FOOD CARRIERS
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FLAKE ICE
SINK
MIXER
KOCH MODEL 3865
TABLE
PASTRY SHOP
BAKE OVEN
TABLE
STORE ROOM
VALUABLE STORAGE
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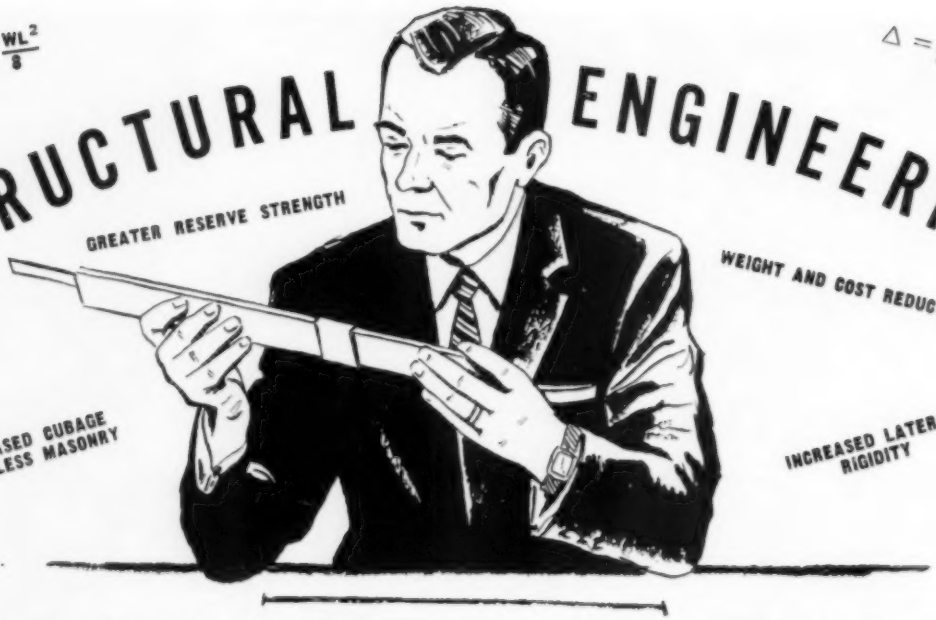
LIQUOR STORES
Disneyland Hotel
Anaheim, California
Pereira & Luckman
Architects & Engineers
Fred Schmid Associates
Food Service Designers

$M = \frac{WL^2}{8}$

$\Delta = \frac{5WL^4}{384\,EI}$

STRUCTURAL ENGINEERING



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IN THE STRONGER, LIGHTER, MORE RUGGED

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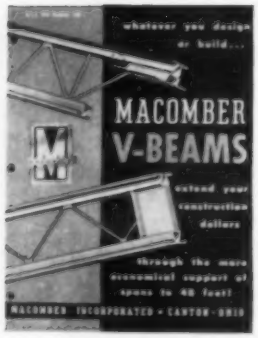
whatever you design or build...
MACOMBER V-BEAMS
extend your construction dollars
through the more economical support of spans to 48 feet!
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V-BEAM
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TEXAS National BANK
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Huge revolving sign with 15 ft. diameter WEATHER EYE, 85 feet above the 21 story building flashes weather forecasts by color.

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Kenneth Franzheim
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System of individual room **Air conditioning control** *used in this colorful building*

The ultimate in comfort has been provided for the occupants of this beautiful building. With individual room control they can select and enjoy the temperature they want.

Maximum year-round comfort, obtained with 640 Powers pneumatic summer-winter thermostats controlling 1500 air conditioning units, helps increase employee efficiency.

When you want modern individual space temperature control specify a Powers pneumatic system. The advantages of its simplicity and dependable performance have been *proven* in many of the nation's prominent buildings.

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(c54)

A Sargent door closer installation is a

guarantee of satisfaction!

You specify the Sargent Liquid Door Closer . . . and *forget* it! No complaints to worry about.

Why? Because of the special Sargent features:

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- The fact that the *standard* closers can be opened up to 180°. . . and that it offers a less critical adjustment with a *single* screw adjusting valve.

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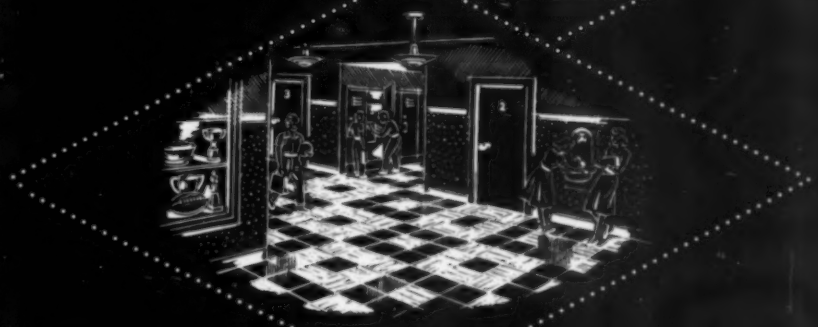
Sargent Builders' Hardware

OFFICE BUILDINGS

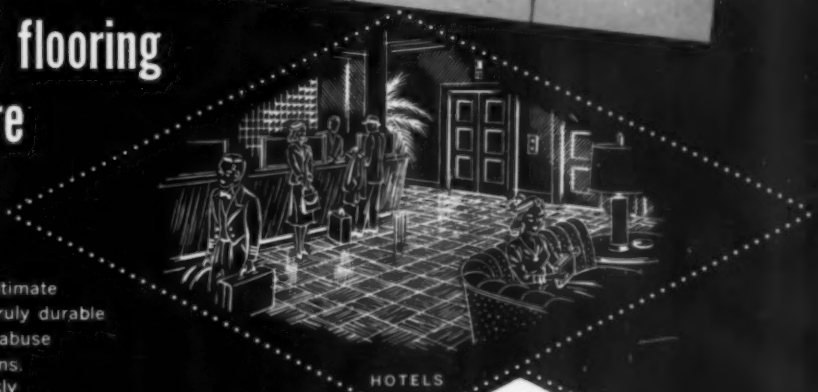
when traffic is heaviest



SCHOOLS

WRIGHT

VINYL TILE flooring gives years more care-free wear!



HOTELS

WRIGHT Vinyl Tile provides the ultimate in rugged serviceability. Here is truly durable tile flooring, resisting the hardest abuse from scratches, scuff marks, stains. Acids, alkalis, and grease are quickly removed from its water-proof, non-slip surface. Impervious to temperature change, it will not warp, buckle or crack. Maintenance is easier, more economical too, than with any other type of resilient tile flooring.

Completely homogeneous, WRIGHT vinyl meets the most exacting quality control specifications. Its smooth, even surface never loses its brilliance, and the deep, clear colors retain their full richness even after years of wear.

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WRIGHT MANUFACTURING COMPANY
Div. of Mastic Tile Corporation of America
Dept. W9-5, P. O. Box 986, Newburgh, N.Y.

Please send me full details on WRIGHT Vinyl Tile and WRIGHT Rubber Tile

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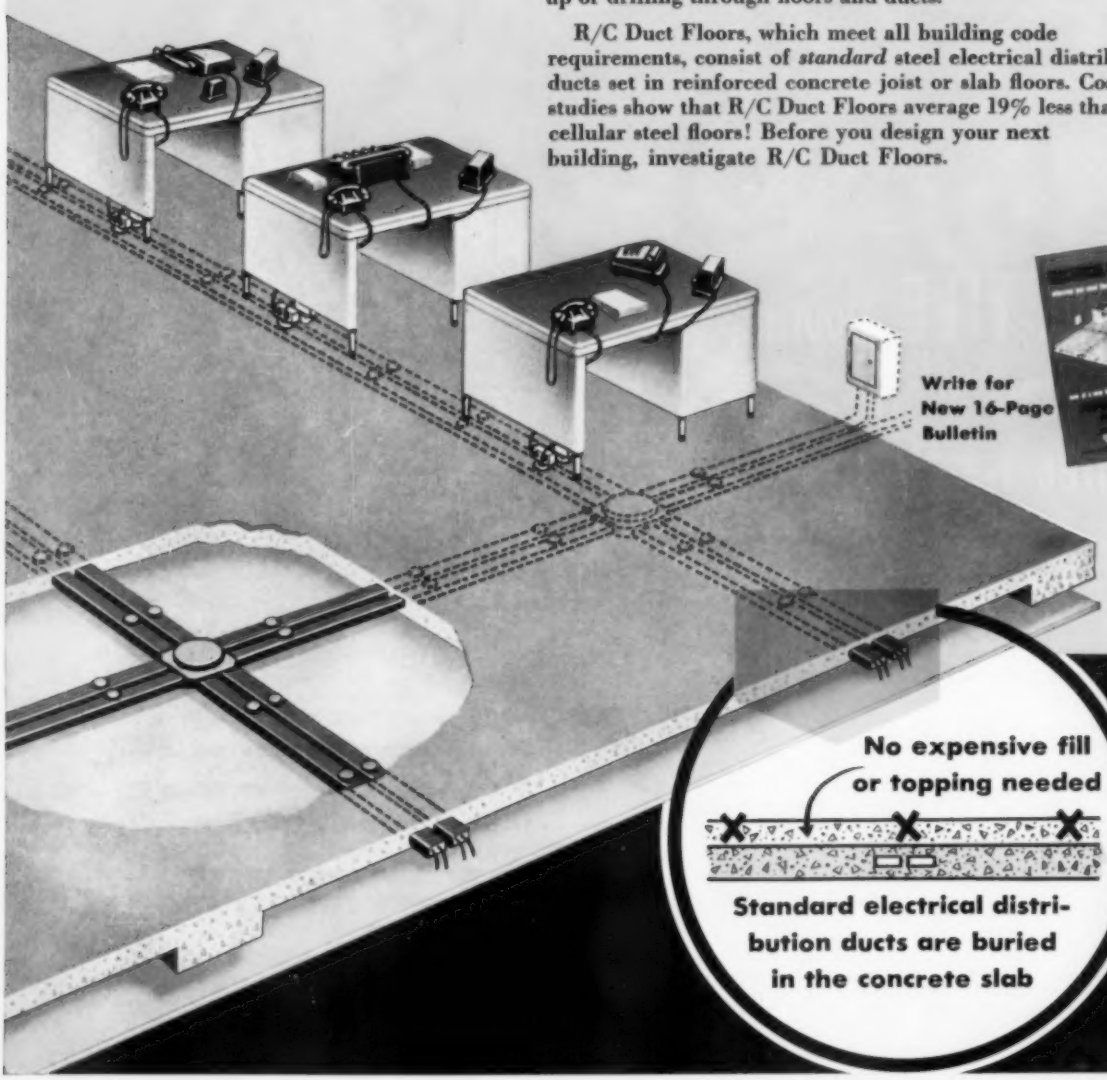
R/C DUCT

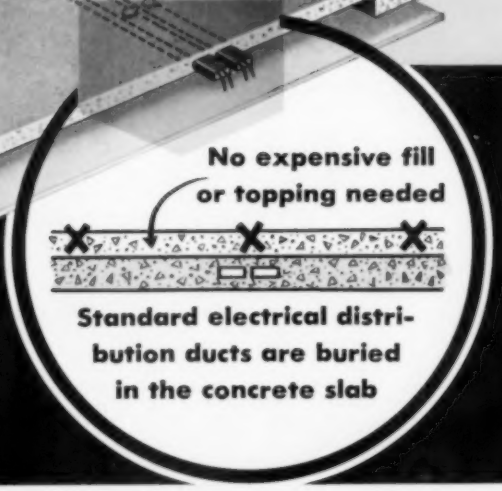
provide 100% electrical flexibility

For this distinguished, 12-story office building, the architects chose a reinforced concrete frame with shallow beam and flat slab R/C Duct Floors which provide a complete network of underfloor electrical outlets for power, light, telephone, and intercom systems—at a new low cost. Outlets can be connected to convenient risers in a matter of minutes without ripping up or drilling through floors and ducts.

R/C Duct Floors, which meet all building code requirements, consist of *standard* steel electrical distribution ducts set in reinforced concrete joist or slab floors. Cost studies show that R/C Duct Floors average 19% less than cellular steel floors! Before you design your next building, investigate R/C Duct Floors.



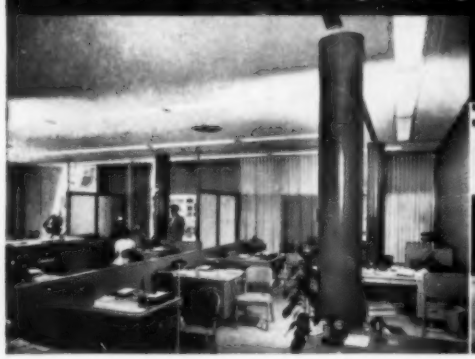
Write for New 16-Page Bulletin

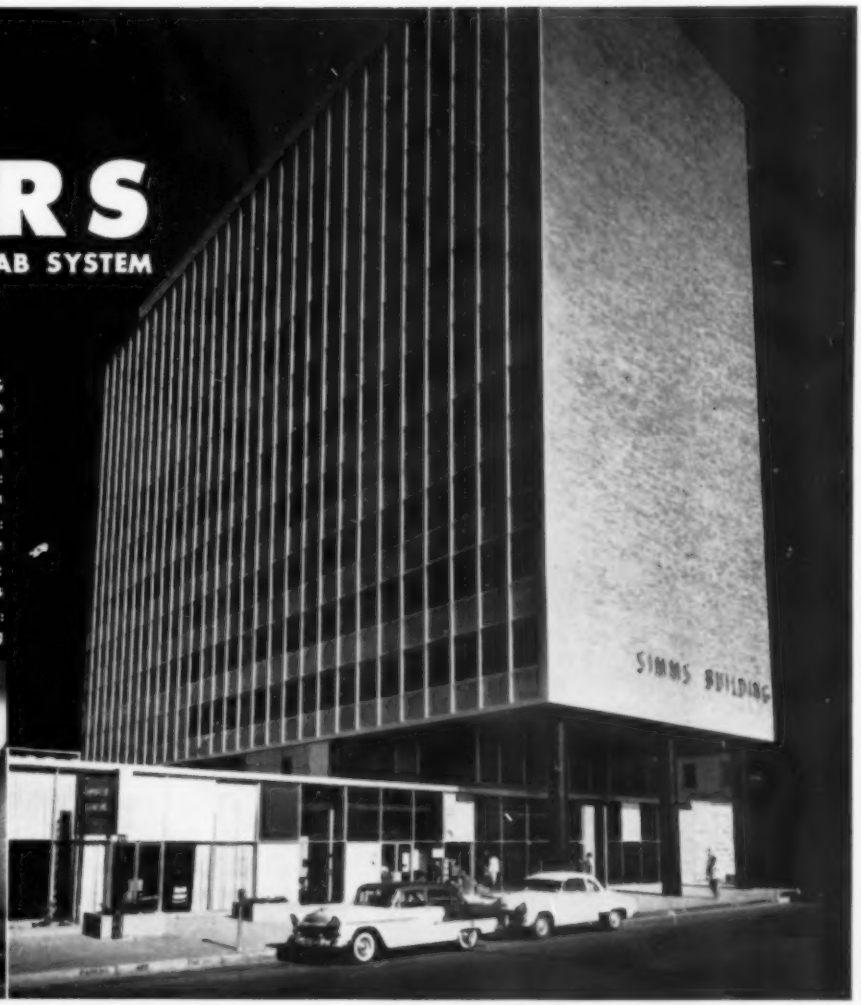


FLOORS

SHALLOW BEAM AND SLAB SYSTEM

SIMMS BUILDING
Albuquerque, New Mexico
Architects:
Flatow, Moore, Bryan, and Fairburn
Mechanical Engineers:
Bridgers and Paxton
Electrical Engineer:
M. V. McIntyre
Structural Engineer:
E. M. Hicks
General Contractors:
Lembke, Clough, and King





REINFORCED CONCRETE

provides economy and design flexibility

CONCRETE REINFORCING STEEL INSTITUTE C.R.S.I. FOUNDED 1924

An outstanding example of the simplicity of architectural detailing and design flexibility achieved by the use of reinforced concrete is the new Simms Building in Albuquerque, New Mexico. The building is framed in reinforced concrete, employing a shallow beam and slab system. The architect, Garlan D. Bryan, states, "When the question of fireproofing for steel structure was analyzed, comparison figures showed that reinforced concrete would be cheaper in initial construction and in the lower insurance rates for this location." On your next job . . . design for reinforced concrete.

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Garrett Eckbo

Robert Royston

Edward Williams

Garrett Eckbo, Robert Royston and Edward Williams form one of the busiest and best-known partnerships in the field of landscape architecture. Their firm has been honored by the American Institute of Architects, the Architectural League of New York and Progressive Architecture Magazine, for outstanding work on commercial, industrial, educational and residential commissions. Published works include "Landscape for Living" (1950) and the forthcoming "THE ART OF HOME LANDSCAPING."

Of Garden Redwood, Mr. Williams says, "It's an important item on any landscape architect's list. There's a CRA grade for every garden use."

* * * * *

Coordinated landscaping adds immeasurably to the beauty and value of the home—to the satisfaction of the client—to the prestige of the architect.

FOR LANDSCAPE ARCHITECTURE, TOO, IT'S

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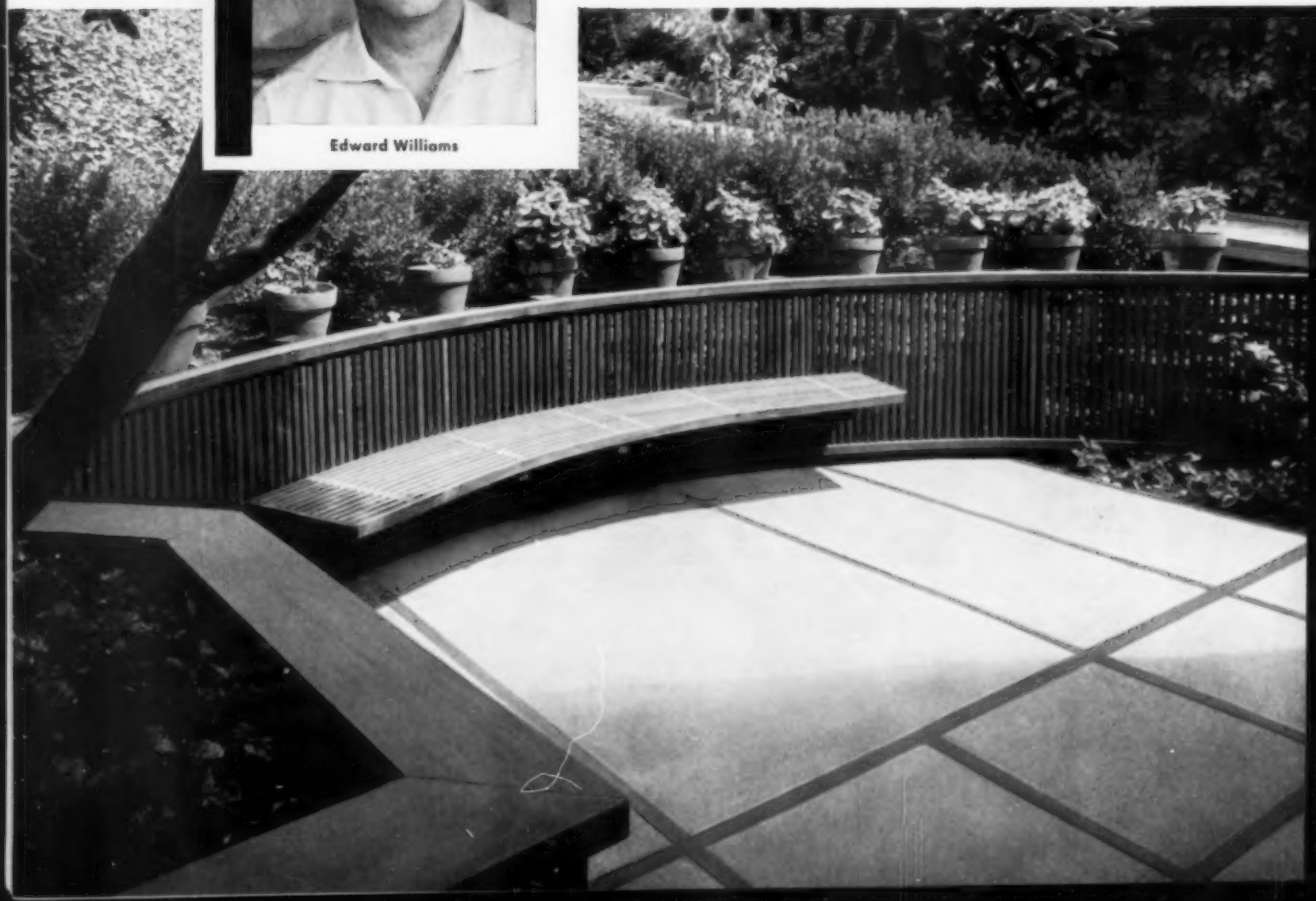


new.....

CHICAGO YACHT CLUB

....dining room

Specially designed HOLMES *wilton lends air of gayety to Chicago Yacht Club dining room.*

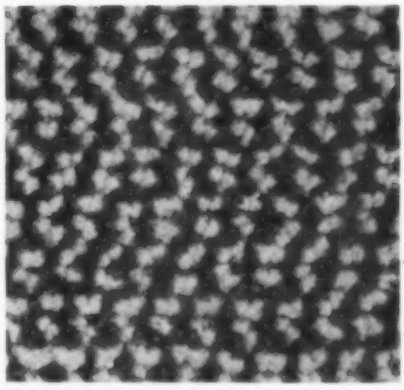
Raymond Loewy Associates ... select custom designed wilton carpet by HOLMES

for smart decor... underfoot luxury

To help create a cheerful atmosphere and note of distinctive decor in the Chicago Yacht Club dining room, Raymond Loewy Associates selected HOLMES wilton carpet in special design and color.

HOLMES wilton Quality 713 was selected for the long wear that its closely-packed, all-wool pile would provide. The pattern was designed to minimize spotting and soiling. Wall colors, furniture and light fixtures were chosen to complement the tri-tone motif of the subtle brown, tan and beige shades in the carpet pattern.

HOLMES Contract Staff, who worked so closely with the architects on this installation, is ready to give you the same cooperative custom carpet service ... to keep your requirements for pattern, weave, color and width within budget allocations. Write now for HOLMES CONTRACT HERALD showing other outstanding HOLMES contract carpet installations.

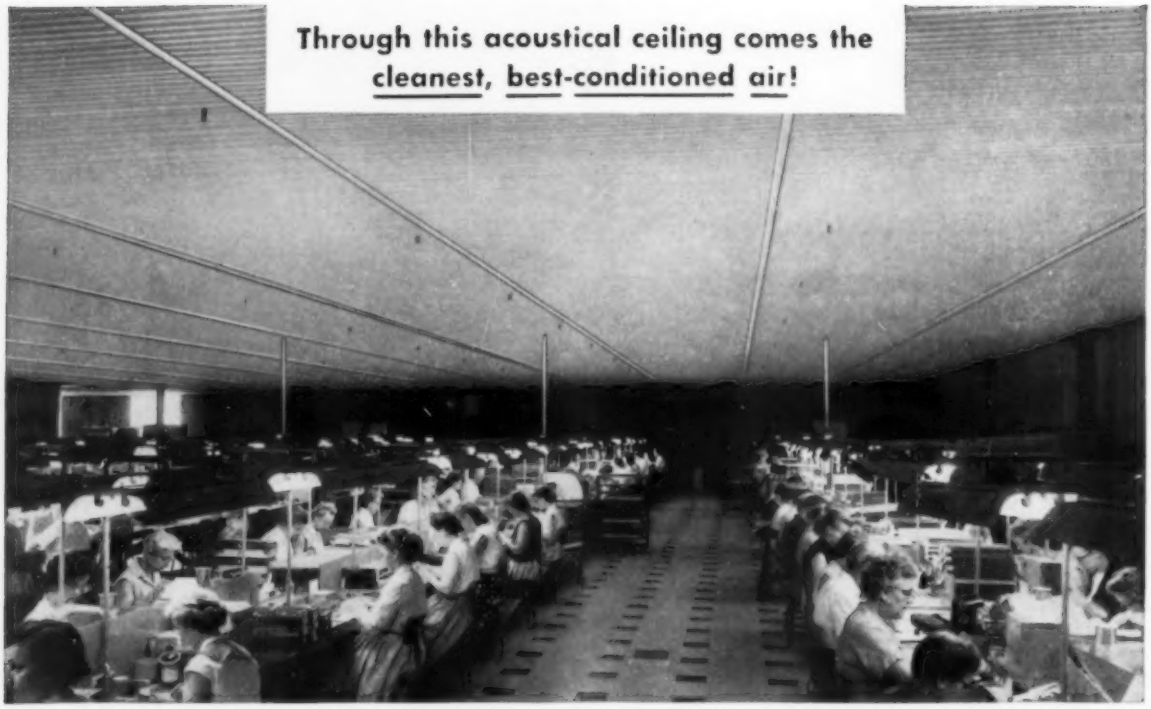


Full scale photograph of design used in dining room and stairs.

Quality Carpets Since 1857

Archibald HOLMES & Son

Erie avenue and K street ... Philadelphia 24, Pennsylvania



Through this acoustical ceiling comes the cleanest, best-conditioned air!

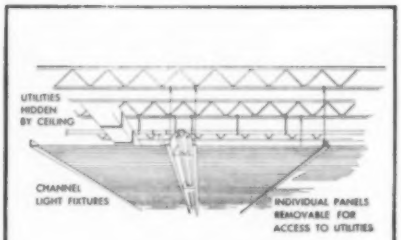
A Dramatic Use of ReynoCoustic

Clean air, precisely controlled for temperature and humidity is essential in aircraft instrument manufacture. Sound conditioning is also important...for worker productivity. Marion Electrical Instrument Co., Manchester, N. H., achieved both objectives by using ReynoCoustic as part of the air-conditioning system.

This provides noise reduction up to .90, high at all frequencies... plus draft-free distribution of clean, conditioned air to all points. Humidity is kept close to 50% at 72° F. Maximum gradient across the room is 1° F. Year-round range is 72°-75° F. This permits a standard reference for measurements and calibrations.

These ReynoCoustic panels are white-enameled. They are also supplied in natural-color aluminum.

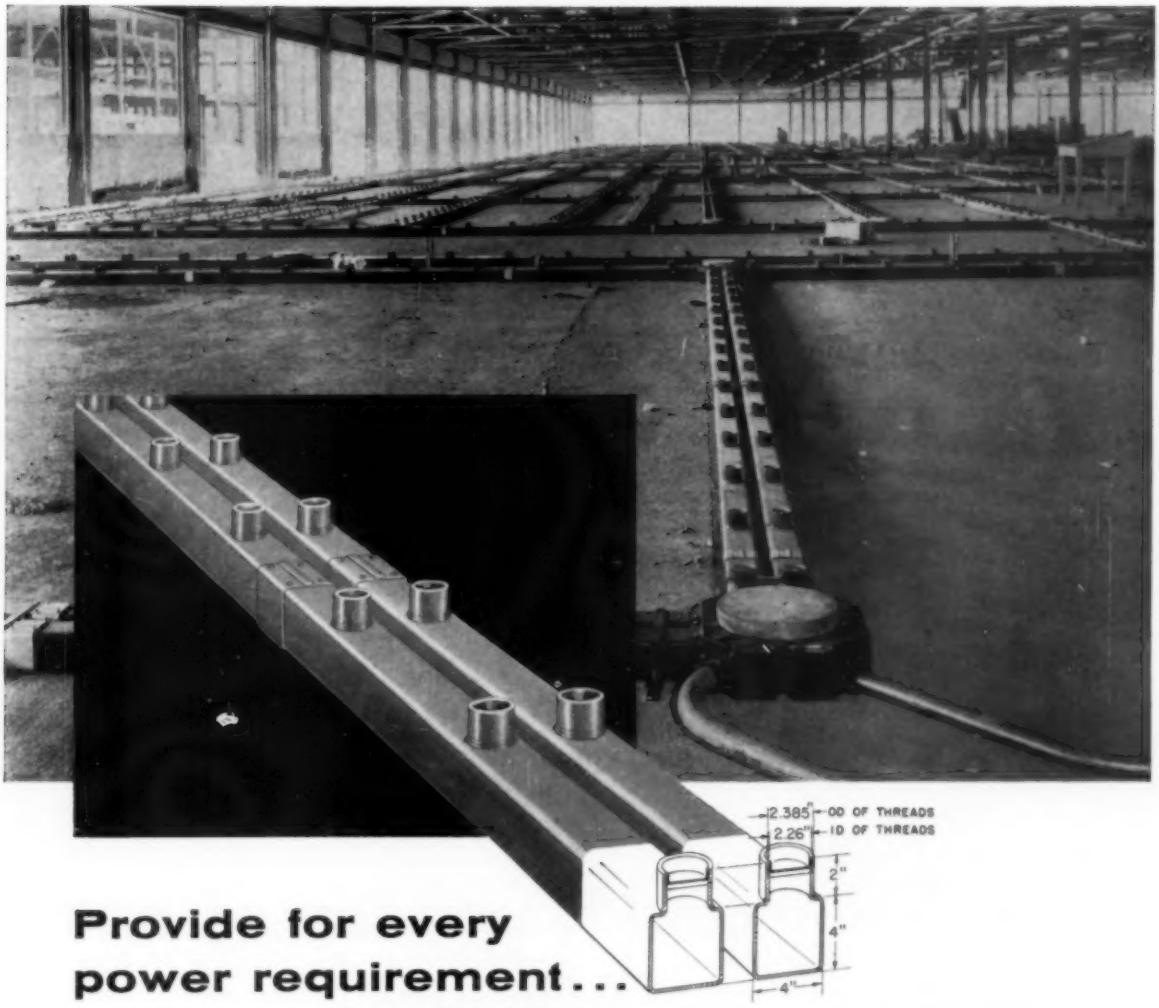
A complete installation service is available. For name of nearest franchised acoustical applicator, call the Reynolds office listed under "Building Materials" in classified phone books of principal cities. For literature, write to Reynolds Metals Company, Building Products Division, 2014 South Ninth Street, Louisville 1, Kentucky.



Typical ReynoCoustic application—panels and fiber glass backing rest on aluminum tees and angles. Marion Co. installation by Post Products, Inc., Boston, uses same method to suspend ceiling 3' below insulated roof. This space forms plenum for air conditioning system designed by Marion, engineered by Cobe & Foster, Inc., Manchester. System forces pre-filtered conditioned air into plenum at 24,000 cfm.

See "FRONTIER," Reynolds great dramatic series, Sundays, NBC-TV Network.

REYNOLDS ALUMINUM
BUILDING PRODUCTS



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4″ x 4″ Cross Section—more room for wires

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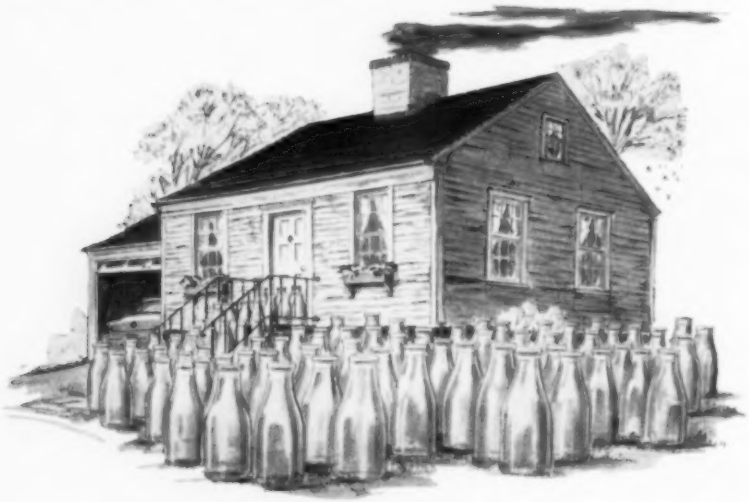
No Wonder

TIMBER ROTS—PAINT PEELS—PLASTER CRUMBLES—STEEL BEAMS RUST!



Seventy-six quarts of actual water

in the form of 152 pounds of WATER VAPOR permeate the average home each week.

Here's the breakdown for a family of 4 per week

	VAPOR
Breathing and Perspiring (2 oz. per person per hr.)	51.0 lbs.
Showers (½ lb. per bath)	14.0 lbs.
Washing Clothes	4.3 lbs.
Drying Clothes Indoors	26.0 lbs.
Cooking (Gas) (4.7 lbs. daily)	32.9 lbs.
Ordinary Dish Washing (1 lb. daily, automatic much more)	6.0 lbs.
Mopping (100 sq. ft. daily, 3 lbs.)	18.0 lbs.
TOTAL WEEKLY VAPOR	152.2 lbs. or 76 quarts

HOW IT WORKS:

Because vapor has slight density, about 1/205,000th the density of water at 32°F and 1 millionth at zero degree F., it passes through brick, stone, plaster, etc. Most building materials, even asphalt paper, are *porous* to vapor.

When vapor meets a cold front inside walls and ceilings and reaches a dew-point, it condenses. This destructive "fall-out" (condensation), stimulates the growth of the ever-present microscopic spores of fungi in timber that cause dry-rot. Paint peels! Plaster cracks! Masonry crumbles! Iron rusts! Destructive condensation cost over a MILLION DOLLARS in repair bills to one apartment development alone!

Metals are the best vapor barriers because they have almost ZERO vapor permeability. Multiple layers of aluminum interspersed with air spaces, also scientifically minimize condensation formation on or within them; as well as the flow of heat by radiation, convection, and conduction.

When multiple sheets of aluminum stretch parallel all the way from joist to joist, they insulate the entire area with full-depth, *uniform* protection.*

Such insulation is available commercially in *continuous* pre-fabricated lengths of 375 to 750 ft. It is installed in ceilings, walls, floors and crawl spaces; between wood beams and studs, steel girders and trusses.

The U. S. National Bureau of Standards has published an informative booklet describing the destruction that condensation can cause, and means of its prevention. It is entitled "Moisture Condensation in Building Walls". Send us the coupon for a FREE copy.

*Patents applied for.

Infra Insulation, Inc., 525 Bway., N.Y.C. Dept. P-5
Please send BMS 63

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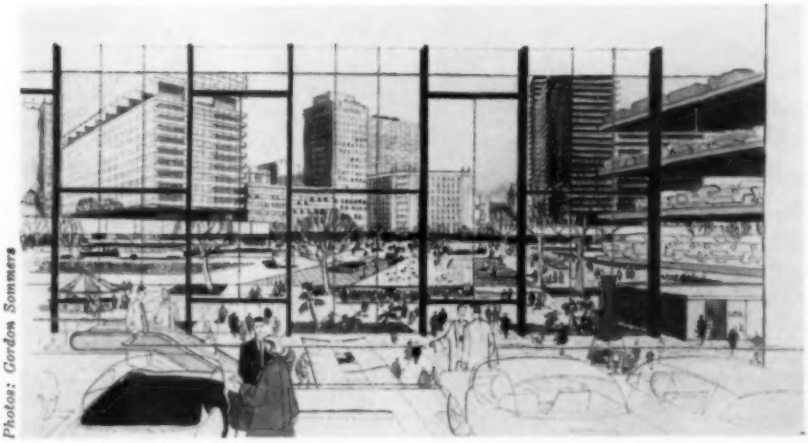
FIRM_____

ADDRESS_____

FORT WORTH PLAN EXCLUDES AUTOS



Photos: Gordon Sommers

This plan for "A Greater Fort Worth Tomorrow," recently presented to Fort Worth citizens by Architect Victor Gruen, incorporates these bold and imaginative proposals: 1. A central district free of automobiles and trucks; 2. Strategically located parking garages and terminals accessible from a belt highway; 3. Underground truck routes and delivery facilities. The replanned business district, which will basically maintain its established street pattern, lies within natural boundaries set by the Trinity River, the railroads, and the freeways. Turnoffs from the proposed belt road, encircling this "New City Core" will lead to car storage structures and bus terminals. View from one of the six parking terminals (*left*) indicates close proximity to major downtown facilities —in no case more than 2½ minutes walking distance from the nearest parking garage. Comfortable, noiseless, battery-powered shuttle cars would be available for the convenience of pedestrians. Ways and means are presently being studied by the Fort Worth Planning Commission and several subcommittees toward the implementation of this plan.

Panda Photography

Power-Groove Doubles Light Output

New "Power-Groove" fluorescent lamps that double light output of present tubes of equal length have been announced by General Electric Co. Radically different design features series of lengthwise grooves along one side of tube permitting maximum circumference while constricting inside area. Huge gain in light output is achieved without loss in efficiency or units of light produced per watt.

Toronto Apartments Recently Completed

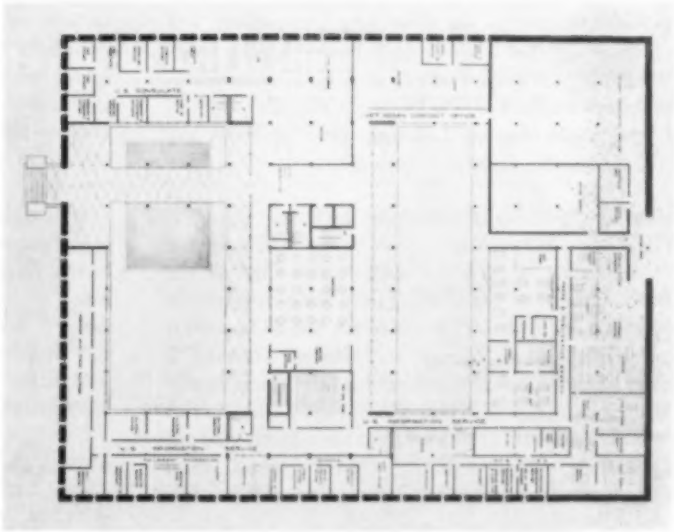
To be presented fully in a subsequent issue of P/A, this multistory building combines family apartments and apartment/hotel facilities. Apartments range in size from one-room efficiency units, to apartments with a study and two bedrooms in addition to living, dining, and kitchen areas. Most rental units have generous outside balconies. Page & Steele were the Architects; Hooper & Yolles, Structural Engineers; H. A. North & Co., Ltd., Mechanical Engineers.

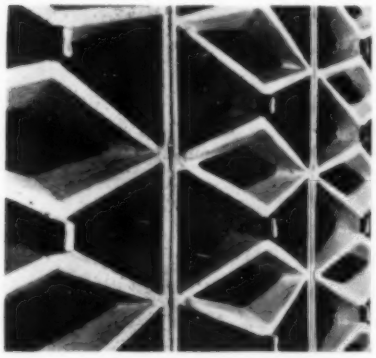
Superblock Development To Increase Columbia U. Campus

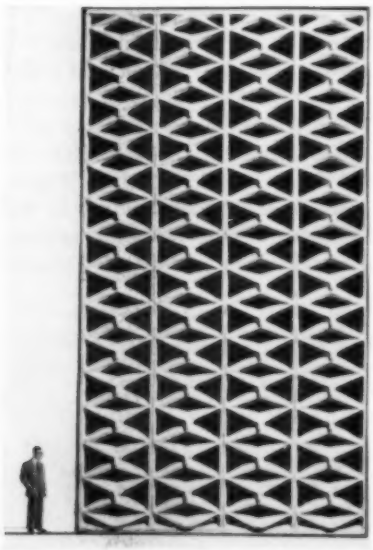
If the design developed by Harrison & Abramovitz for the East Campus of Columbia University is approved by the Board of Trustees, a raised, landscaped plaza/bridge (left, foreground) will span Amsterdam Avenue to join the new area with the level of the existing campus. New units scheduled for the superblock (the city would relinquish a block of 117th Street to permit a single, continuous space) will be the Law School (central building in rendering); a Faculty Office Building (left, background); and a residence hall for graduate students (not shown). Four University buildings already located in the area would remain —the President's House; Men's Faculty Club; Johnson Hall; and Casa Italiana, a center for Italian studies (*left*).

U.S. EMBASSY OFFICES FOR MANILA SCHEDULED

In contrast to its own new office building for Washington, D. C. (*see* WASHINGTON REPORT) the U.S. Department of State, through its Office of Foreign Buildings, continues to sponsor, encourage, and accept progressive architecture abroad. One of the latest in the distinguished group of designs commissioned by this agency is the Supplemental Office Building for Manila, in the Philippine Islands, designed by A. L. Aydelott & Associates, of Memphis, Tennessee. Architects selected for these commissions are urged to study and be sympathetic to local background and indigenous forms, without in any way compromising a contemporary expression either in form or function. In Aydelott's case, the pierced-screen treatment of the upper office block recognizes local climatic conditions, while the solidly surrounded compound at the lower floor not only echoes the construction of adjacent older structures but also turns the work spaces inward to courts, patios, and planted areas.







Washington Report

by Frederick Gutheim

Publication of the designs for the new building to house Department of State (main elevation, below) reveals a singular contrast with the architecture of embassies and other structures abroad under the Department's Office of Foreign Buildings (FBO). What Graham, Anderson, Probst & White, Inc., of Chicago, with Harley, Ellington & Day, Inc., of Detroit, and A. R. Clas, of Washington, have produced is standard Government Modern, a building hardly to be distinguished from such models of bureaucratic architecture (by, for, and of bureaucrats) as the General Accounting Office. The prospect of this $50-millions building (really an addition to the present building which houses the Secretary's office) is cheerless. It has been approved in principle by the Fine Arts Commission, and there is little doubt that it will be built forthwith. The building will be the largest single Federal office building in Washington (although smaller than the Pentagon and the proposed Central Intelligence Agency buildings, both of which are technically outside the Federal City, in Virginia).

This defeat for creative architecture, as it has been expressed in recent FBO work or even in design of the Atomic Energy Commission, signals the revived authority of the Public Building Service, General Services Administraton. It probably means, too, that PBS will select the architect for the Central Intelligence Agency; and whether Harrison & Abramovitz (retained by CIA) will survive this Governmental switch is doubtful. The fact that PBS is highly conscious of the architectural aspects of its work, and has aggressively put forward these aspirations in its recent press releases, offers some crumbs of encouragement. But not enough!

The new status of PBS is legitimate: it stems from the establishment of the agency as a central government building service, and has less-direct descent from the office of the Supervising Architect, which in one form or another goes back 150 years. But in the process, and with acceleration since the war, the influence both of the architects commissioned to do work and of the top Government Architect, himself, has waned. Only the personal distinction of a man like George Howe, when he held the post, kept it from being evident that the engineers were moving in, the A&E design philosophy had become dominant, and pragmatic considerations alone were serving as the basis for the selection of architects and the approval of design. All of these tendencies have grown far stronger as PBS itself was pinched in the lean, hungry days before the lease-purchase program and the Eisenhower Administration revival of public-buildings activity. Scapegoating is not an effective response to these developments. They are too deeply imbedded in our times, and too widely expressed by other Government agencies (the military establishment in particular) and by many corporate clients other than Government bureaus, to allow such an easy explanation. Moreover, with the acknowledged objectives of economical building, efficient construction, cost control, designs that reflect use considerations, architects by and large have little quarrel. These are general objectives of our times, reflected not least in the way most architects run their own business as well as in the buildings they design. But fact-control, whether in accounting systems or in architectural design, is a source of information to the designer, not a source of tyranny; and as expressed in many instructions, standards, and indeed in the selection of architects, it has become a strait jacket. There can be no forward movement so long as we are anchored firmly to the present way.

That a building of this type and scale should raise these issues ought to be a matter of deep concern to architects. In the lease-purchase program, which is chugging steadily along on the basis of greatly improved Congressional relations, it has been evident from the beginning that the pursuit of purely financial objectives would result in inferior design. But these have been general-purpose buildings, lacking the wallop of the State Department building.

• With the approval by the National Capital Planning Commission of redevelopment plans for Southwest Washington, the brilliant designs by I. M. Pei and Harry Weese are substantially advanced. The approval covers all major land uses, the street locations, and such design features as the controversial Mall—an element which has been misunderstood by nearly every public official or agency having to do with this project. Indeed, the esthetic aspects of this plan, of major significance in linking a once-derelict area to the sounder parts of the city, have largely been overlooked. The same might be said for the other notable feature of the plan: the concept of the so-called "town houses." One would have thought that Washington's preoccupation with "saving the central city" and its row-house traditions would have allowed a special appreciation of this effort to create a workable alternative to suburbia.

News Bulletins

• Chairman Alexander C. Robinson, III, of Centennial Celebration Committee, reports that preparations for AIA's 100th Anniversary are under way. Centennial Exhibition of Architecture, scheduled for National Gallery of Art, May-October, 1957, and accompanying catalog will be prepared by Frederick Gutheim. Illustrated catalog for public sale is proposed; also being investigated are possibilities for traveling exhibitions in U. S. and abroad. . . . Other Committee projects include: Centennial Book to be written by John Ely Burchard; Centennial Medal to be designed by Ivan Mestrovic; program for Centennial Postage-Stamp competition; Memorial Tablet for Trinity Building, New York, marking site of AIA founding; and History of AIA, by Henry H. Saylor, to be published in special issues of the Journal of the AIA.

• International competition for redesign of area surrounding Cologne Cathedral is being sponsored by City of Cologne. Prizes of approximately $4750, $3325, $2375, and $1425 will be awarded in competition open to architects and planners. After payment of entrance fee of 100 DM ($23.75) to Girokonto Nr. 93, Stadtsparkasse Köln, Germany programs can be obtained from Städtebauamt der Stadt Köln, Stadthaus, Gürzenichstrabe, Germany; entries are due August 31, 1956.

• Eduardo F. Catalano has resigned position of Acting Head of Department of Architecture, North Carolina State College, to become Professor of Architecture at MIT in fall of 1956. . . . Prof. Clinton H. Cowgill will retire from post as Head of Department of Architecture, Virginia Polytechnic Institute, at end of summer quarter this year. Leonard J. Currie, now Director of Inter-American Housing Center, Bogota, Colombia, will fill vacancy. . . . Dean Leopold Arnaud of Columbia University's School of Architecture, has been awarded Cavaliere Ufficiale del Ordine al Merito della Repubblica, one of Italian Government's highest decorations, for furthering better understanding between America and Italy.

• Sixth Annual Design Award Program of Industrial Designers' Institute will honor designers of outstanding work in mass-produced, nationally distributed objects. Entries are due May 19, 1956; submission forms are available from Walter C. Granville, Container Corp. of America, 38 S. Dearborn St., Chicago 3, Ill.

• Rudolph A. Matern and Herman H. York acted as Architectural Consultants for 1956 International Home Building Exposition—SHOWCASE FOR BETTER LIVING—being held at Manhattan's new Coliseum, May 12-20.

• Winners of 1956 Architectural Awards at annual National Joint Conference on Church Architecture are: Class I (churches seating over 300), no First Prize, Second Prize—Richard J. Neutra, Architect, for Navy Chapel, Miramar, Calif.; Class II (under 300), First Prize—Harold Wagoner for Presbyterian Church, Vero Beach, Fla.; Class III (major alterations or additions), no First or Second Prizes; Class IV (religious-education facilities), First Prize—Alfred Preis for First Methodist Church, Honolulu, Hawaii; Class V (master plan), First Prize—Frederick Hodgson for First Evangelical United Brethern Church, Santa Ana, Calif.

• American Society of Landscape Architects will hold 57th Annual Meeting in Cleveland Hotel, Cleveland, Ohio, June 24-27. . . . National Convention of American Society of Civil Engineers will take place in Knoxville, Tenn., June 4-8.

• Alonzo W. Clark, III, and John Gray Faron have been re-elected Chairman and Vice-Chairman, respectively, of Beaux-Arts Institute of Design's Board of Trustees for 1956. Also elected were: Georgio Cavaglieri, Treasurer; Otto Teegen, Secretary; and Frederick G. Frost, Jr., Benjamin Lane Smith, Robert Allan Jacobs, and Bruno Funaro, Trustees.

• Beginning in fall of 1956, Miami University, Oxford, Ohio, will offer one-year graduate program leading to Master in City Design Degree.

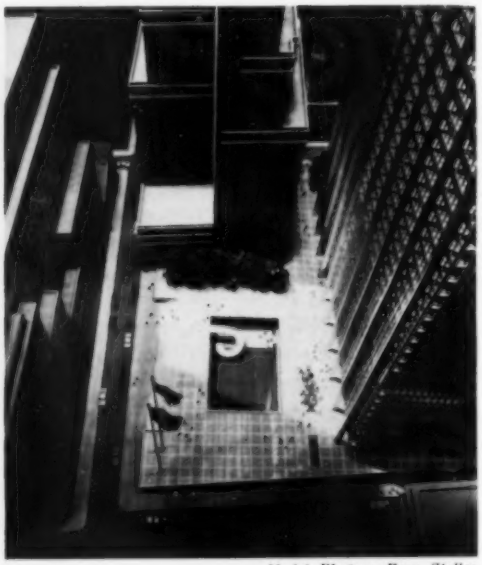
• Theodore Irving Coe, AIA Technical Secretary, will receive annual Edward C. Kemper Award for service to the Institute at AIA Convention this month. . . . Craftsmanship Medal will be awarded to Sculptor Harry Bertoia, best known for his abstract welded-metal sculptures in General Motors Technical Center, Detroit, and in Manufacturers Trust Company, Fifth Avenue Branch, Manhattan. . . . Fine Arts Medal will be presented to Hildreth Meiere, American mural painter and designer, whose work includes decorations for dome of National Academy of Science, Washington, as well as commissions for Nebraska State Capitol and Rockefeller Center.

• AIA Pres. George Bain Cummings will present Institute's 1956 Gold Medal to New York Architect Clarence S. Stein (right) at Annual Banquet, May 17, in Los Angeles. Stein, named AIA Fellow in 1934, receives international recognition as designer of Sunnyside Gardens, Radburn, and, more recently, Kitimat, British Columbia. . . .

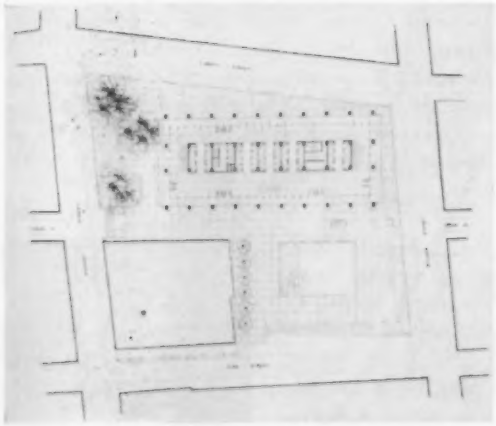
Gretchen Van Tassel

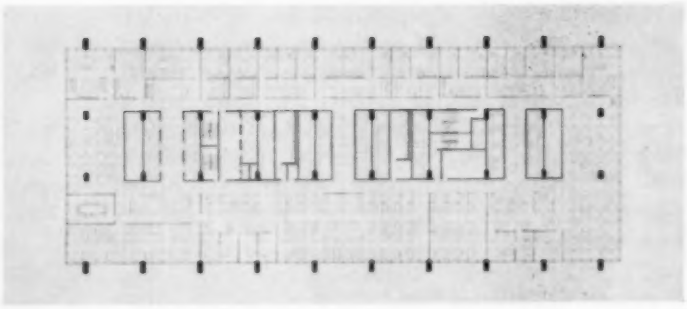
1956 Medal of Honor of New York Chapter, AIA, has been awarded to Antonin Raymond (right) architect of many outstanding buildings in U. S. Japan, and the Far East. Pres. Robert Hutchins gave Medal at dinner, April 12, celebrating 87th Anniversary of Chapter.

TOWERING HQ FOR N.Y.'S CHASE MANHATTAN BANK TO LEAVE 70% OF SITE OPEN



Model Photos: Ezra Stoller





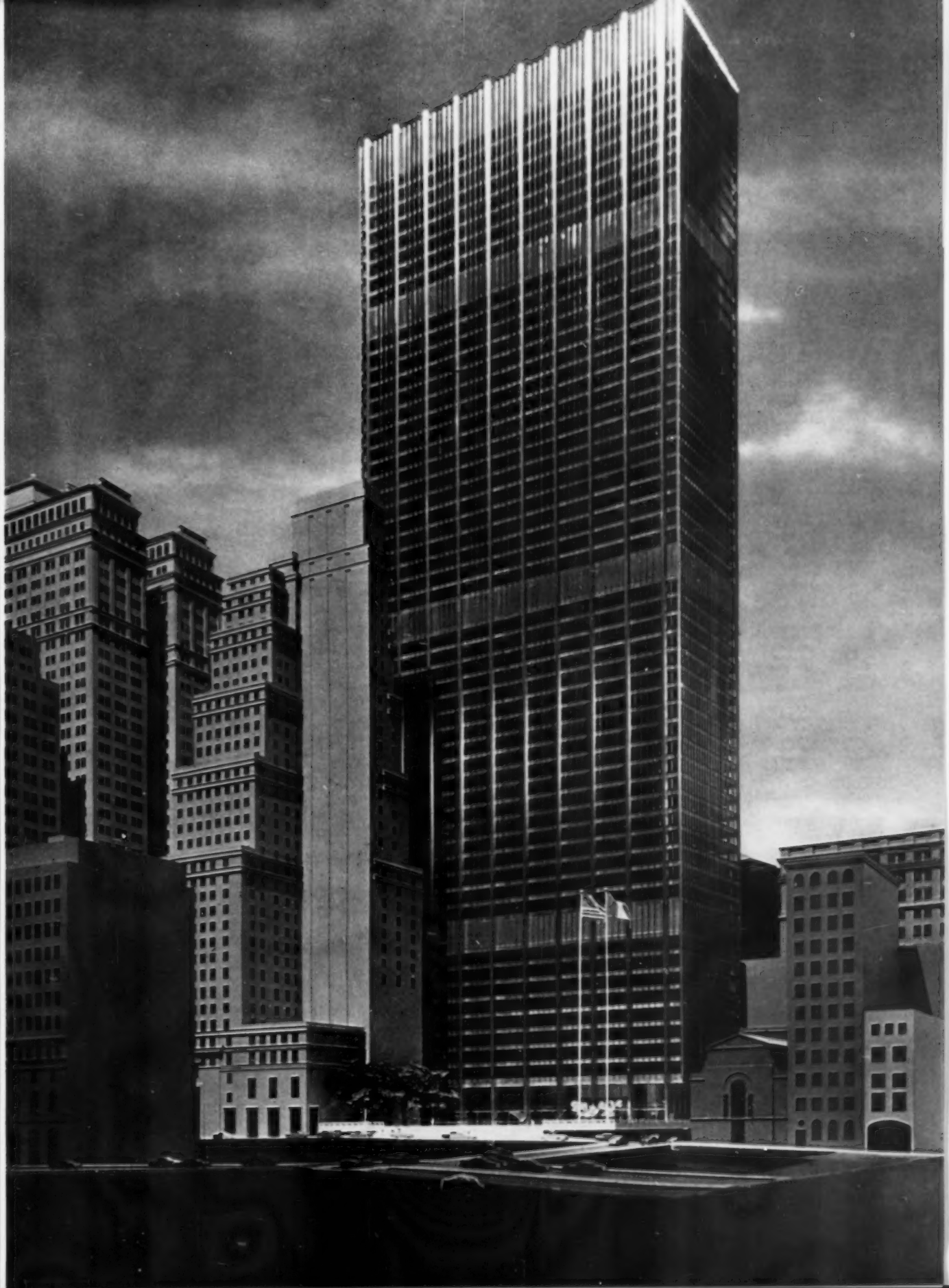
Like a shaft of light introduced into a dungeon, the design for the 60-story, new main office building for the Chase Manhattan Bank, will bring light, air, landscaping, and pools and fountains into the heart of New York's Wall Street district. Seventy percent of the nearly 2½-acre site will be left open, and a landscaped plaza, with sunken pool and fountain, is an important focal point. Skidmore, Owings & Merrill are the Architects. The public banking floor borders the sunken plaza, and (because of a site slope) occurs at street level on one side. Three subway lines will also serve this level, or it may be reached from the plaza by a curved stair.

Because so much space is to be relinquished at the lower levels, need for setbacks is avoided, and all floors will have 30,000 sq ft of useable area—an area further maximized by use of *external* metal-clad columns that extend 810 ft unbroken from the plaza level to the top of the building. Windows of the fully air-conditioned building will be sealed, and spandrels will also be metal surfaced—stainless steel or aluminum.

Four entire floors of the building will be given over to housing mechanical equipment—heating, air conditioning, and mechanisms for exterior window-washing platforms. A special feature of this very special building will be a vehicular ramp from one of the bordering streets that will allow cars and trucks to be driven directly to basement floors for off-street unloading.

To obtain the full, two-block site one block of the present Cedar Street will be closed to vehicular traffic. In return, the bank will relinquish certain areas of its adjacent properties to permit street widening in the crowded area.

Approximately 15,000 persons will work in the building; estimated cost is in the neigborhood of $75 millons; and it will probably be three years a-building.



Financial News

by William Hurd Hillyer

A challenge to imagination and ingenuity will confront many architects as commissions are received to draft data-processing-production centers. Ground for one of these major structures, IBM's 13-story electronic computing headquarters, will be broken at Wiltshire Boulevard and Mariposa Avenue, Los Angeles, within a few weeks. The building, which is of "advanced design," will house 600 wizardmasters when completed in mid-'57. Portland, Seattle, and other West Coast cities are likewise affording sites for processing centers, each with special technical problems.

Housing also has a "first" as officially planned for Akron, Ohio. The project is to accommodate elderly people, and special emphasis is placed upon their needs. The local housing chief, M. P. Lauer, as architect, has included such comfort features as bathtubs with seats, no-climb closet shelves, and a buzzer system to give warning if occupants are in trouble.

• What with the 10-year housing shortage approaching its end, and 50 percent of America's families earning more than $5000 annually, home replacements are receiving consideration. New houses for old will soon be the order of the day. However, this market will differ from other similar situations in that it faces a steady tightening of money sources, a suburban migration with one-family domiciles in the lead, and a rigid cost framework to tax layout skills. The money source hurdle, despite the benign antics of Fanny May (Federal Mortgage Insurance Association) is so lofty that a dip into pension funds for mortgage financing is being strongly urged.

• The do-it-yourself craze is endangering the architect's portion of home modernization. The $14-billions (estimated) "fix-up-the-house" volume in 1956 will be nibbled at by amateurs unless a dignified campaign teaches a dwelling-minded public the dollar-saving and artistic advantages of retaining professional services.

• Capital, conservatively plotted at $26 billions during the current year to cover new dwellings and modernization, will call for a net investment of some $11 billions after allowing for mortgage repayments and refinancing. To this should be added a rising volume of industrial and commercial construction, including office buildings, shopping centers, warehouses—about double the comparable 1955 figure of $8.5 billions. Furthermore, private investors can get 4%, backed by Uncle Sam's promise, through the financing of Federal buildings. New England banks are already referring inquiries to General Services Administration, Washington, D.C. Since construction requirements compete for money with a probable $33 billions capital investment planned by business and industry, it's a question where all the funds will come from. The savings outlook for the year has not been encouraging, because consumer spending and individual debt expansion are still affecting it adversely. Savings and loan associations, the biggest reservoirs of mortgage funds, report that three-fourths of their stockholders' current layaway is being drawn out. Commercial bank reserves are being depleted by businessmen, who are borrowing heavily for taxes and present needs; bank loans in reserve centers have been mounting at a record rate of half a billion dollars per week.

• Small-town banks will continue to afford worthwhile architectural opportunities during the year's remainder, for many are planning new edifices. What these local money marts lack in expenditure they make up in numbers, plus a growing determination to be as modernly housed as possible. More than half the nation's banks are in communities of less than 3000 people and have assets below $3 millions. The typical "village bank" of present-day erection, according to a Commercial West editorial survey, costs $45,000 without vault or fixtures, measures 55'x38' on a 50'x130' corner lot that includes parking space. It is one story, faced with brick on four sides, has aluminum double-glazed windows—one of them drive-up—and a thermostatic control which assures all-season comfort for 10 officers and clerks, as well as customer delight.

• Inflationary warnings and tight-money complainings have not yet served to hold effervescent feelings in check. Businessmen, says the Guaranty Trust Company of New York, seem about to regain "the same sort of buoyant optimism that prevailed last year," despite today's "elements of uncertainty." The same authority draws a distinction between "improvement in sentiment," derived from tomorrow's possibilities, and "the actual course of present business activity," which is somewhat "static" at the moment. Federal Reserve seasonally adjusted index of industrial production, for example, is running unchanged since October except for a one-point spurt at Christmas. Retail sales are sagging and the trust company discerns no "radically different pattern" for the near future.

The Federal Reserve Bank of Chicago, though conceding a "stable-to-declining" activity level, sees a fourfold formation for business optimism: (1) failure of auto sales cutback to affect other lines, (2) "rosy spending plans" of both consumers and business, (3) indications that Federal spending will rise in the coming fiscal year, and (4) resumption of uptrend in stock market prices. To further these views comes the Federal Reserve Board itself with an extensive current sampling of consumer expectations. The high points: fully as many houses will be bought this year as last; more money will go into building additions and making repairs; as many autos will be purchased in '56 as in '55; there'll be more installment acquisition of furniture and household appliances. Two-thirds of the 2800 interviewed look for good times. In the words of U. V. Wilcox, leading Washington correspondent for bankers, "It will be a Santa Claus year."

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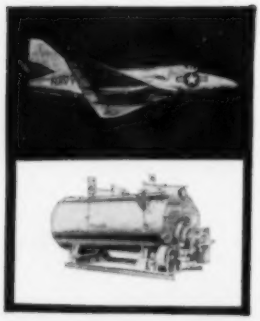
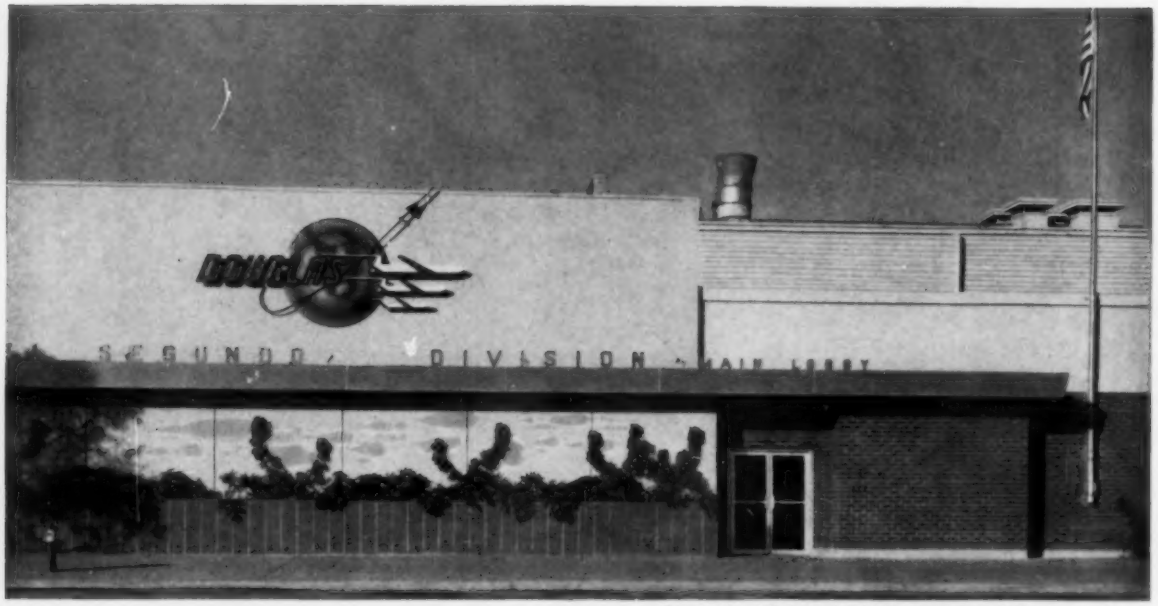


Sisters under the skin . . . when it comes to "cruising speed"



Douglas Aircraft Company, Inc. Division, El Segundo, California
Architect & Engineer: Holmes & Narver, Inc., Los Angeles, Calif.
Heating Contractor: E. Willardson, Inc., Los Angeles, Calif.

■ No one knows the importance of "cruising speed" operation in aircraft better than the Douglas Aircraft people. They know an airplane, to be efficient, to operate economically, to have longer life, must fly at "cruising speed." They know, too, there must be extra reserve power for take-off—for emergencies. So, when it came to boiler selection for the new A4D Skyhawk production facilities at their El Segundo, California Division, it was only natural they turned to Kewanee Reserve Plus Rated Boilers with 50% extra built-in power assuring "cruising speed" operation. For "cruising speed" means less strain—less wear. It means higher efficiency . . . it means lower maintenance and repair costs. Kewanee Boilers are rated on nominal capacity with reserve to take care of normal needs—meet emergencies of the present—fluctuating loads and future expansion. A boiler rated on maximum capacity, operating at constant top speed, requires more maintenance, constant attendance, and finer burner adjustment to maintain efficiency. So, choose Kewanee—for lower fuel and maintenance costs—more efficient "cruising speed" operation.

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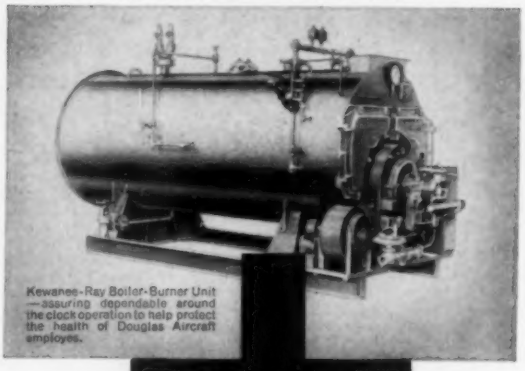

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CELA

Communications, ELectronics, Automation

a study by

Editors of PROGRESSIVE ARCHITECTURE

Consultant: Dr. Walter J. Duschinsky

cela design factors

CELA, used as the title of this special issue of PROGRESSIVE ARCHITECTURE, is a word created to symbolize the interrelationship of *communications, electronics,* and *automation* as they affect planning and architecture.

All three of the words condensed to form CELA have been loosely used; all three of the functions they decribe have been subject to underestimation (communications, in particular, has affected building design to a point seldom realized) and to exaggeration (automation, for example, has become almost a cliché in recent months). There is no doubt, however, that the combined CELA influence has produced new technological frontiers, has upset existing hypotheses in fields where architectural programs are generated, and will very sharply modify planning concepts in many types of buildings. This issue is an attempt to point to some of the changes that have already occurred, to document some of the building categories where changes are now being made, and to forecast some of the further influences and new programs that designers of buildings will soon have to consider, as the CELA services become more fully integrated with contemporary business, industry, education, and living in all its aspects.

If the architect or engineer were not interested in these developments himself, as a technical advisor to society, he would soon have to realize that many of his clients are now looking on CELA factors—telecommunications, electronics, and degrees of automation—as components of a "second industrial revolution." Modern communications, starting with the now-common telephone and telegraph, merging with radio and television broadcasting, reaching complex possibilities in relay systems and exchanges, have led almost without the layman realizing it to the forms of documentary communication and electronic computers, analyzers, receptors, and signalers that are available. From this—through elementary communications and its electronic translation—the move to automation (defined in this issue simply as the trend to electronic mechanization) has been inevitable. Here is electronic communication put to work to manufacture, to process, to service—and, one hopes, to serve.

Not only is automation variously defined (see page 121 for a further discussion of this), but it has also been variously evaluated as a social, as well as technological, force. Having already reached a point where electronic communications make possible devices which can anticipate the job they are supposed to perform, it is inevitable that reactions should vary from rejection through fear (loss of jobs, machine controlling man, loss of personal initiative) to adulation.

From now on the architect or engineer will often have to pick up where his brother technicians—the inventors and developers—have left off, and determine how and when CELA factors fit into an over-all program. With his client, he will have the problem of deciding whether a certain telecommunications system, a certain automatic process, is desirable, economically feasible, physically possible. Centralized controls will no longer mean simply panel boards but, as the final pages in this issue suggest, entire building complexes. In almost every element of every kind of building —from the home kitchen, through schools and hospitals and commercial structures to industrial units, the influence of CELA will be increasingly felt.

Beyond their effect on individual buildings, CELA influences have become important factors in urban planning. As time-distance relationships change, as social habits alter, the physical design of the community will certainly have to accommodate them.

Land-use criteria—translated into zoning of industrial, residential, commercial, and institutional elements — are influenced by telecommunications, from the home telephone to commercial high-speed facsimile. Land values are consequently affected. Circulation patterns will change: increased use of electronic communications will reduce some types of carrier traffic; moving traffic will be subject to more centralized direction; parking control by electronic eyes and TV observation is possible. Horizontal traffic, by these means, may approach

COMMUNICATIONS: *A flexible TV studio for multi-type productions, viewed from the control room. NBC-TV Studios, Burbank, Calif. The Austin Company, Designers-Engineers-Builders; Fordyce & Hamby, Consulting Architects-Designers.* All Credits for Illustrations: Page 229.

the degree of automation that electronic elevator co-ordination now makes possible vertically.

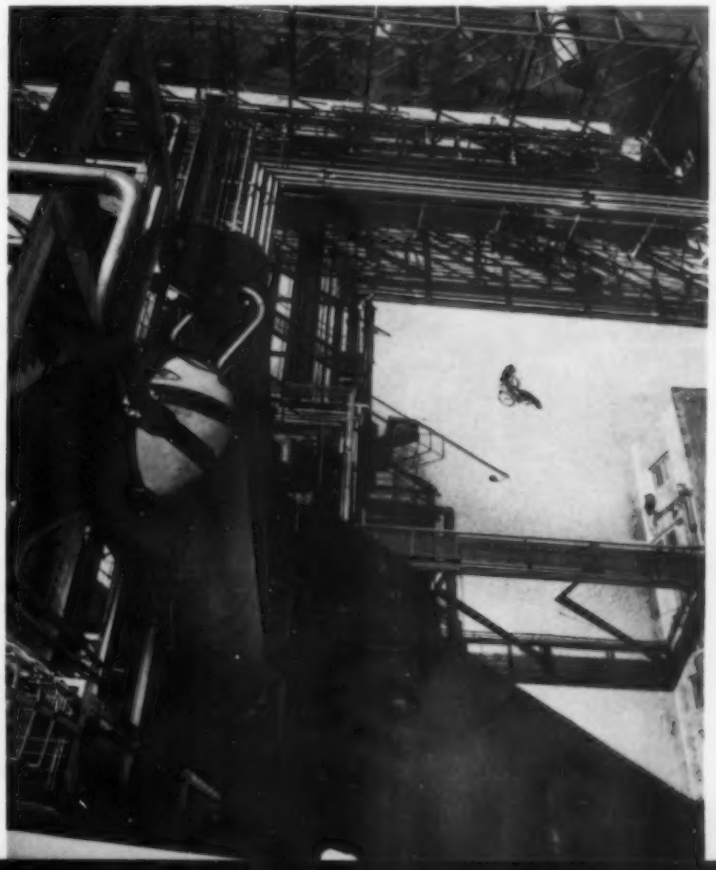
In the use and location of community facilities, the effect of changing social habits due to TV viewing has already been felt. Electronic transmission and receiving facilities—audio, video, and facsimile—will further influence the arrangement of facilities for such social activities as shopping, health care, education, family recreation.

And in the planning of utilities—the civil-engineering part of urbanism—network paths, production flow, power grids, pipelines are changing in scope and location, as control and management are more directly related to telecommunications facilities and automatic controls.

CELA is a big subject, and one issue of a magazine cannot hope to cover even its implications. Its social impact (effect on employment; effect on leisure) and its educational potential (the classification and, to a degree, the use of our increased store of knowledge) are beyond the scope of this study. The pages that follow simply attempt to document some existing instances of CELArization in building design and planning, and to speculate on further possibilities. The designer of buildings must prepare himself to advise and guide in a newly important field. In a large sense it will be up to him to determine whether CELA is friend and servant, or foe and master.

ELECTRONICS: *Giant-sized electronic computers (page 119), used in making speedy calculation for jet-engine design, are housed in this new building at General Electric's jet-engine plant near Cincinnati, Ohio. Designers: A. M. Kinney Associates, Engineering & Architectural Consultants.*

AUTOMATION: *Implicit in the maze of feed lines, cracking towers, and cross-overs of this portion of a synthetic-rubber plant, Los Angeles, Calif., is a high level of mechanization. Built by Ford J. Twaits Company, Construction Engineers; J. Gordon Turnbull, Inc., Consulting Engineers.*



Dr. Walter J. Duschinsky, consultant for the CELA issue, is known to P/A readers for his earlier work on the TV Station Study (September 1953 P/A). *Dr. Duschinsky, an expert in the field of telecommunications, has also a fine understanding of architectural design principles. He is Head of Telecommunications Project Division, Victor Gruen & Associates.*

common carrier: telegraph

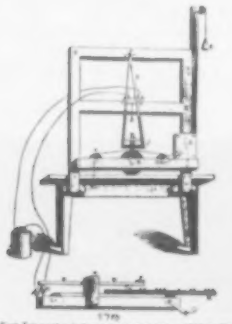
THE TELEGRAPH—that is to say, some form of sympathetic telegraphy—has tempted man's experiments since the 16th Century. However, it was not until 1837 that the first practical model of a dot-dash-space code recorder was exhibited. The studies of Samuel Morse in instantaneous transmission of signals by magnetic induction through the opening and closing of an electric current resulted in practical application about the middle of the 19th Century.

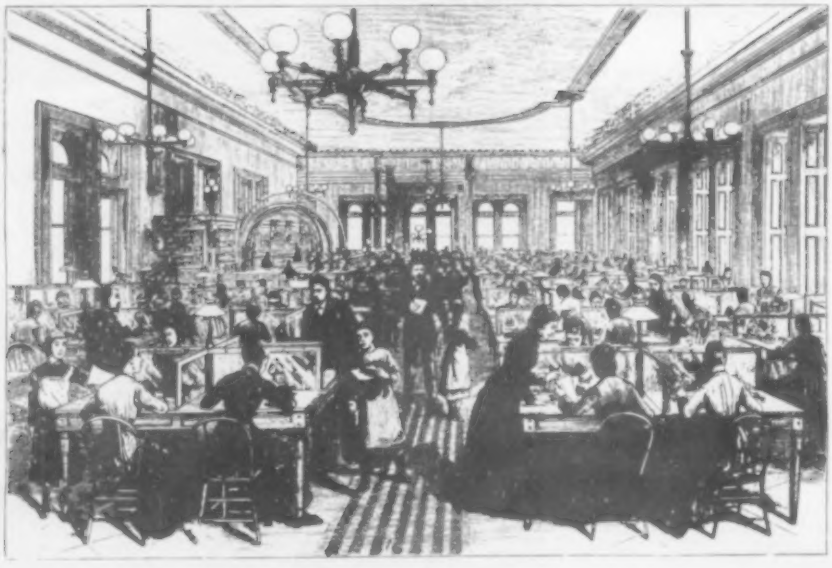
From this point, growth of modern telegraphy has been rapid. Simultaneous transmission lines replaced the single-message lines; Marconi demonstrated the possibility of wireless telegraphy; moving-paper-tape recording and then facsimile-tape systems supplemented the sound-reading method of reception; the telegraph as a dispatching medium grew as the railroads expanded; independent companies merged, and telegraphy became big business; Western Union appeared, and it became an industry; Thomas Edison and others mechanized its processes and its uses multiplied; submarine cables were laid, switching centers were built, radio-relay was found practical, and telegraphic communication leaped national boundaries.

Today, Western Union alone handles more than 200 millions of telegrams a year and operates about 2½ millions of miles of carrier equipment, with related construction.

The most dramatic advances in telegraphy, however, have come very recently in facsimile transmission systems. The variety of *-fax* equipment now available can revolutionize not only communications itself but also basic business processes in many fields. Here telegraphy, using electronic tubes, makes possible transmission in exact facsimile of messages and documents, signatures and drawings. The method, basically, is one of translation of light and dark areas to electric current by means of photo-electric tubes, and production of the facsimile at the reception end by activation through electrical impulses of a needle-like stylus.

These systems range from a simple *Desk-Fax*, making possible direct transmission of a telegram while it is being typed by the sender, to an *Intra-Fax* system for intra-company communications, plant to plant, office to office. Some of the ramifications (*Ticket-Fax*, *News-Fax*, and so on) are discussed in more detail under *Business and Industrial Communications*. Almost every building of any type designed by an architect *may* today have its planning affected by the newest extensions of telegraphy.



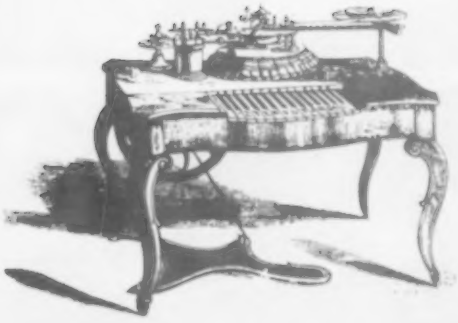


This telegraphic instrument (right) *was exhibited by Morse in 1837. In 1844, he sent the first telegram with the instrument shown in model form* (far right). *Steel engraving* (bottom) *illustrates the main telegrapher's room of a station in the 1880's.*

Telegrams and cablegrams travel faster today than ever before, due to high-speed, automatic methods. Western Union operator (right) *simply types routing symbol and message which then appears in the form of perforated tape. As tape passes through automatic transmitter the coded symbol causes an electronic "brain" at the distant high-speed message center to route and flash the message to its destination area.*

The world's fastest telegraph, the "High-Speed Fax" receives messages in facsimile picture form. The automatic recorder (left) *cuts off and ejects the received message. High-Speed Fax is capable of sending messages at a rate of 3000 words a minute.*

A miniature, facsimile-telegraph machine, called Desk-Fax (right), *is used by telegraph customers to send and receive telegrams in picture form. Approximately 26,000 of these machines are presently in use and serve to connect customers offices directly with machines in central telegraph offices* (below). *Like Desk-Fax, machines at the "facsimile center" are capable of sending and receiving messages.*



Telegraph machine, mid-19th Century

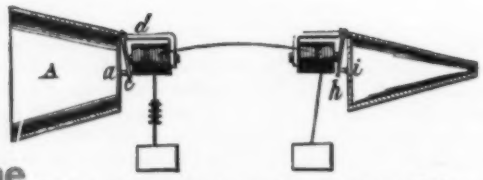


FIG. 56.—PROF. BELL'S TELEPHONE, MARCH 7, 1876.

common carrier: telephone

THE TELEPHONE, progressing from Bell's early experiments with an electrically connected tuning fork and his original patents in 1878, has become a communications common carrier of great scope and complexity, with its interlocking networks accepted as an essential part of modern life.

The basic elements of the telephonic communications system have not greatly changed: the *transmitter*, with its diaphragm vibrated by lung power, varying the electronic current in the *circuit* medium, carrying the procession of electrons from the transmitter to cause a to-and-fro movement in the coils of the *receiver*, which transforms the electric current back to sound by magnetic pulsation of its diaphragm.

However, around these three elements has grown a great industry, subject to national and international control as a vital, well-nigh indispensable utility. By the boosting of its capacity and function through exchange systems, coaxial cables, radio-relays, and electronic devices of various sorts, direct, rapid word-of-mouth communication from any part of the world to any other part is now possible.

Nowhere have automatic processes been more usefully employed than in the central office connecting-and-switching systems—particularly in the long-distance-dial operation. Operators manipulating button keys can activate switching equipment in cities along the route and ring the telephone requested. From an increasing number of points, customers themselves can dial telephones in distant cities, blandly setting in motion the most complicated control equipment at crossroads points—as well as automatic-accounting equipment by which they will be billed!

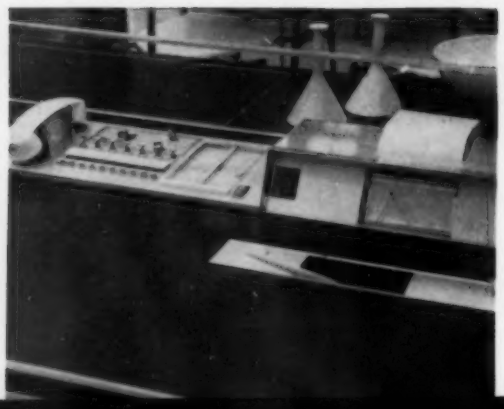
With use of electronic message-sorting tubes, telephone wires can now carry multiple messages as well as teletype and picture transmission simultaneously. The coaxial cable—a copper tube with a single wire isolated in its center — provides a multichannel system by which a pair of tubes can handle 1800 telephone conversations at one time.

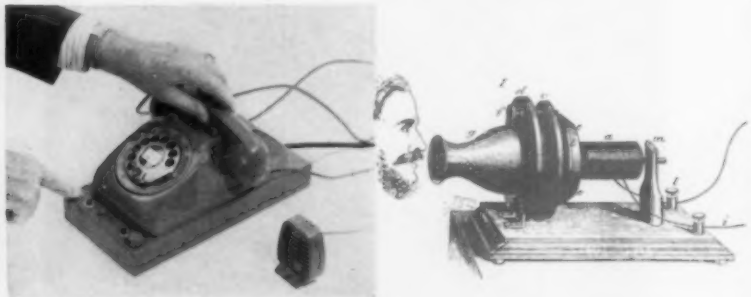
It is the radio-relay system, however, that has provided the new, broad superhighway for telephonic communications. By means of high-frequency radio waves (micro-waves) focused like searchlight beams to magnetic-horn antenna, thousands of telephone circuits (as well as TV channels) can be transmitted from station to station. Since recent research indicates that these radio waves will bend over the horizon to reach distant stations, new advances in international telephonic communication for long distances and over water appear possible.

It seems obvious that these expanded uses of the telephone as a communications medium will have a strong effect on architecture, both in new criteria for relationships of buildings, and the use of many types of structures: and even more directly in the spending of huge budgets for expansion, modernization, and new buildings for the telephonics industry in the immediate period ahead.

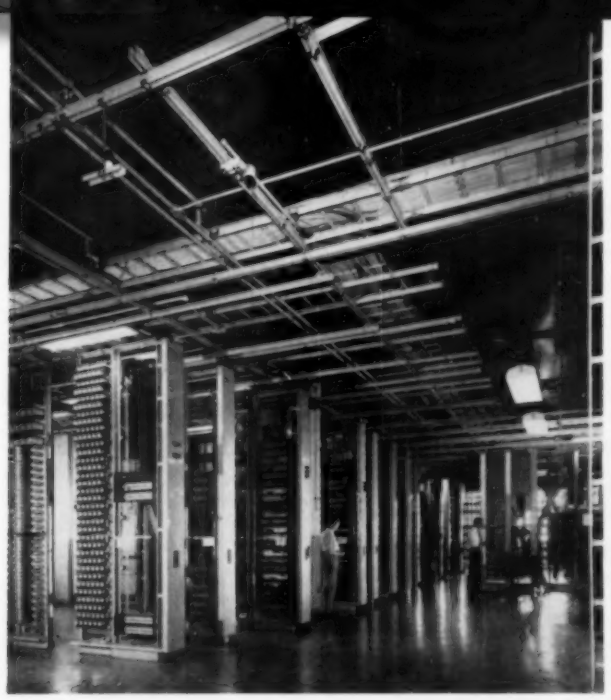
Machine (left) *answers telephone while its owner is away. Cycle starts when telephone rings and receiver is automatically lifted. The owner's recorded voice requests the caller to leave a message. A wire recorder takes the message and the receiver is lowered when the call is ended.*

Hands-free telephone (below), *another recent refinement in telephone design, permits person to maintain conversation while away from fixed telephone position. Small hand-sized microphone attached to telephone by long extension cord may be carried along to files, bookshelves, etc. Telephone has built-in speaker with volume control.*

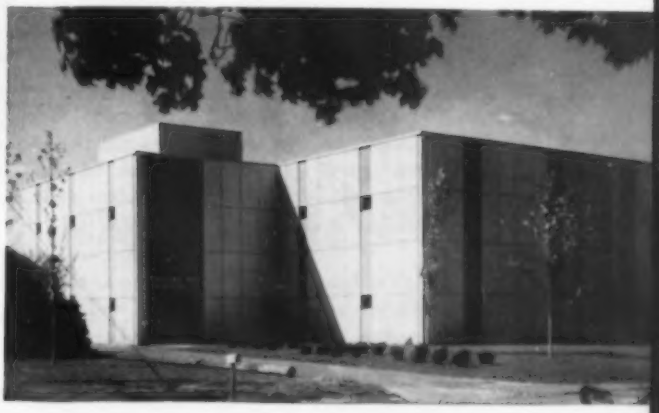




In future, most-called telephone numbers may be dialed automatically by simply pressing button opposite name of desired party. Though basically a hands-free system, it has a standard receiver (left) *for use when privacy is required.*



A blast-resistant structure near Detroit (left and below) *duplicates the facilities of the main downtown Michigan Bell Telephone Company, in case of emergency. Meantime, it operates as a community dial office. Smith, Hinchman & Grylls, Inc., Architects-Engineers.*



This is Michigan Bell's new Automatic Message Accounting Center in Port Huron, Mich. (left and above). *Smith, Hinchman & Grylls, Inc., Architects-Engineers. During both local and long-distance dialed calls in various central telephone offices, mechanisms automatically perforate Automatic Message Accounting tapes which record the calling number, called number, answer time, and disconnect time. The tapes then come to this Center where they are fed through machines that sort out the calls to be charged to specific numbers—and total each customer's bill.*

broadcasting

Wireless telegraphy and telephony without wires were the immediate predecessors of aural broadcasting—the communications medium which became known as radio. The combination of this with video—visual broadcasting—has in our very recent time resulted in the great mass-communications audible-and-visible vehicle we call TV. Radio might be dated, as a practical medium, from Lee de Forest's Audion vacuum rectifier, simplifying and clarifying reception of the broadcast electrical waves. Television's useable application required further developments in the field of electronics. (See special issue, September 1953 P/A, devoted to TV Stations, for a more detailed discussion of this subject.)

The architect's and engineer's primary concern with broadcasting as a communications medium has been, up to now, in the design of originating facilities. More than 2500 radio stations and about 450 TV stations are presently in operation. Most of these are commercial units; only a few educational channels are functioning.

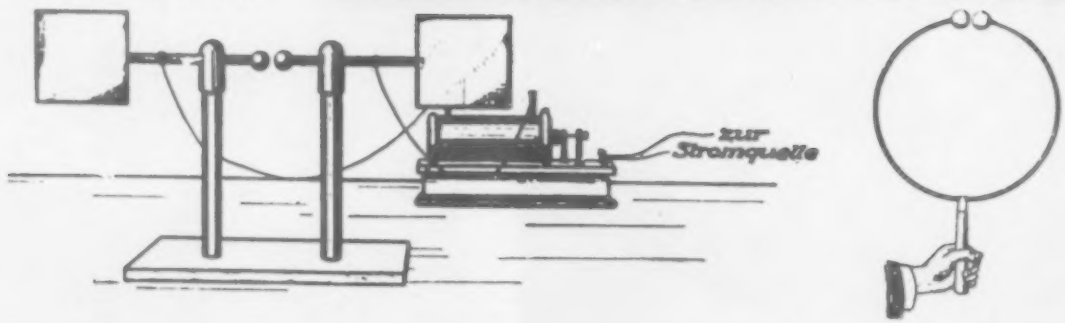
In the radio broadcasting field certain specific types—almost standards—of building have developed: primarily the studio building, the transmitter station, and the combined studio-transmitter. However, in the design of TV stations there is still little shaking down of "types" or establishment of desirable standards. It might be said that the only distinctions so far are of size: the large, national network originating stations, the medium-sized originating stations in the larger urban areas, and the small stations in cities of less than 50,000 population. Yet the gradual standardization of broadcasting equipment, and greater unification of operational procedures point to a more specific definition of criteria for design. In other words, the architect is now in a better position to find out what his client needs.

The designer will also find himself concerned with associated facilities, as well as the broadcasting stations themselves. For example, the increased use of kinescoped, rebroadcast, TV productions, recorded radio programs, and films produced primarily for TV showing will demand new and improved filming techniques and facilities designed for the purpose. On the other hand, "live talent" shows, and studio facilities for their production, will certainly not be abandoned, and design problems will include special provision for such programs as the small interview, the panel, the commercial-spot production and, of course, the huge spectacle and elaborate creation.

Shortly, in addition, the designer of buildings will find himself more concerned with the *receiving* end of broadcasting. Already, residential designers know the problems raised by home listening and viewing, in the design of living spaces. With the growth of broadcasting as an educational medium (and educational TV is a medium which must find its sponsor soon), viewing as a part of the school-design program will be important. And as various applications of closed-circuit TV systems—commercial, industrial, and institutional—become more common, many other elements of building design will be equally affected.

Radio and Television Station WFBC, Greenville, S. C., (right), *was designed by Lyles, Bissett, Carlisle & Wolff, Architects-Engineers. Major consideration in the design was the separation, yet interrelation, of administration, operations, and production. Radio administration is to the right of the central lobby, television administration directly above. Operations are to the center and rear, production to the left and rear of the lobby. The public uses only the entrance lobby and the viewing room. Of interest structurally are honey-comb-patterned lift slabs used to simplify the weaving of electrical and mechanical lines. F. G. Franklin was Chief Engineer; Gilbert Rowe, Structural Engineer; Daniel Construction Co., General Contractor.*

Radio sending device (below) *used by Heinrich Hertz, German physicist (1857-1894).*



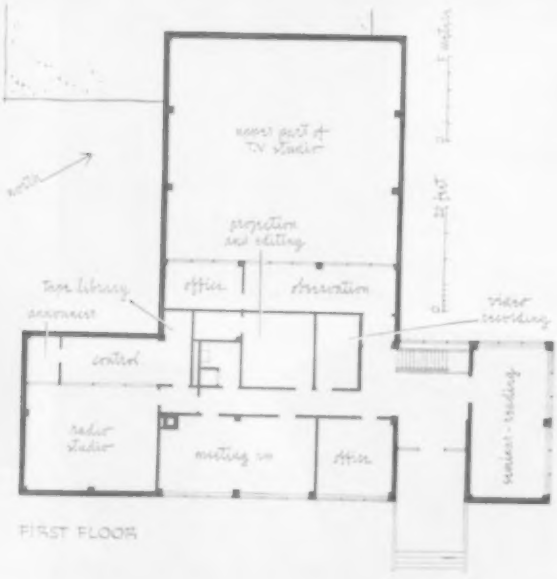
Radio Relay Station for the American Telephone & Telegraph Company (above).

TV Transmitter Station for WBTV, Charlotte, N. C. (left), *is perched on a remote mountain top to give its viewers an unobstructed clear beam, and reception free of interference from other electrical sources. The building contains only transmitter room, shop, special equipment room, office, and a generous lobby with balcony on the viewside. Cables connect the 562' tower and transmitter building with studios in Charlotte. A. G. Odell, Jr., & Associates, Architects.*

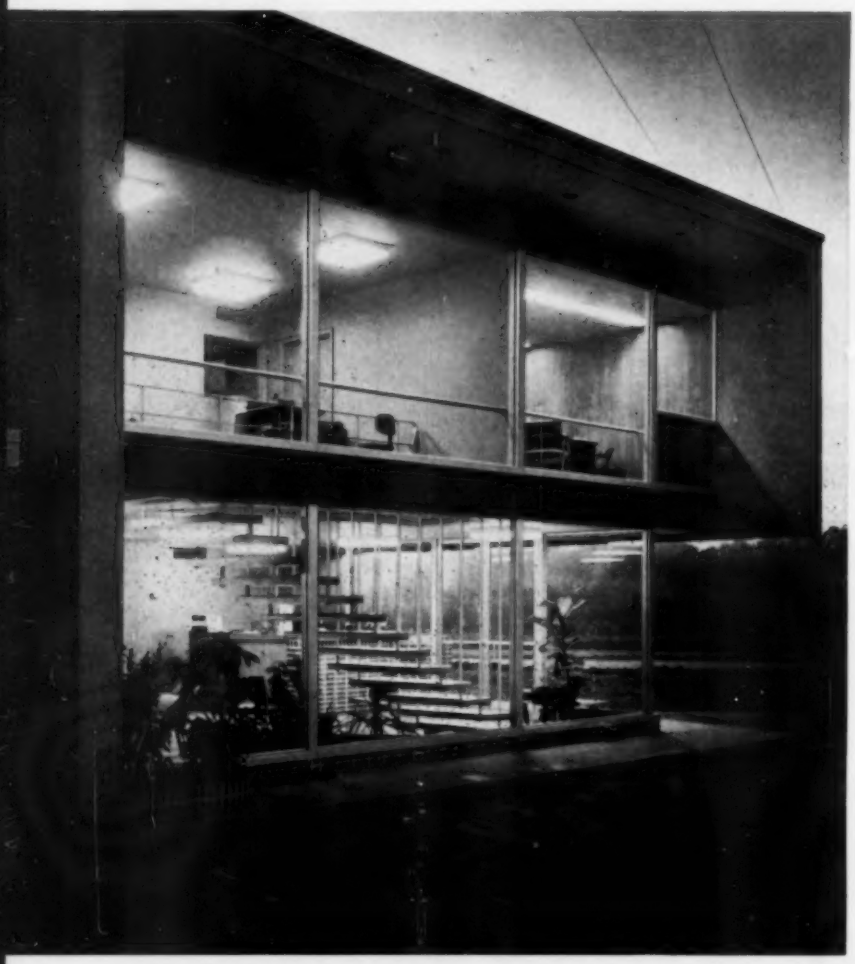
Interstate transmission of TV programs is beamed via microwave relay towers such as the one (below, left) *erected by the Long Lines Department of AT&T. Each tower has four antennas—two for transmission, two for reception.*

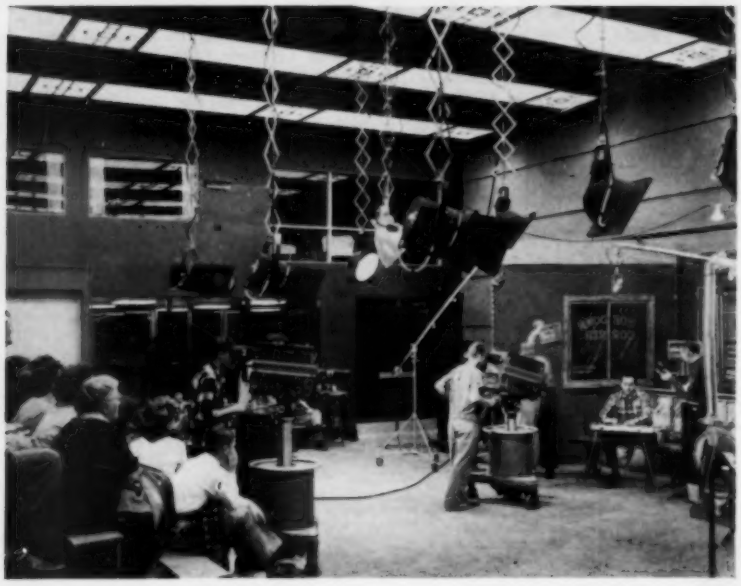
Serving the Detroit area is an installation on the roof of Michigan Bell Telephone Company's downtown building (two bottom photos); *Smith, Hinchman & Grylls, Inc., Architects-Engineers. Signals enter the giant "cornucopia" antennas and are funneled to radio equipment inside the building, where they are changed to picture signals and channeled to a commercial telecasting station. The octagonal pavilion houses transmitting and receiving equipment to handle programs originating in the Detroit area as well as those coming into the city by closed-circuit and commercial telecasts.*

existing building
Television studio
control
mechanical equip.
property storage
office
GROUND FLOOR

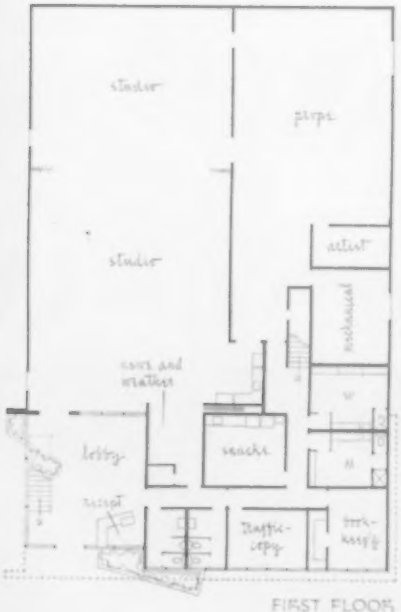

main part of TV studio
projection and editing
film library
control
radio studio
office
FIRST FLOOR

WMAL Television and Radio Workshop, *American University, Washington, D. C., Charles M. Goodman Associates, Architects-Engineers. Built on the campus by the Washington Evening Star Broadcasting Company, this handsome building serves not only for the University's instruction and research activities in TV, radio, and electronics, but also as a center for studying and producing educational TV in (co-operation with civic, social, educational, and religious organizations), and as WMAL's main transmitter station for both radio and TV. It also produces educational TV films and radio transcriptions that serve the nation. The simple grid of the reinforced-concrete frame of the building, expressed in the exterior design, is enhanced with Italian thin-granite facing. Filler walls are either windowed or of Alabama limestone. The workshop is year-round air conditioned.*





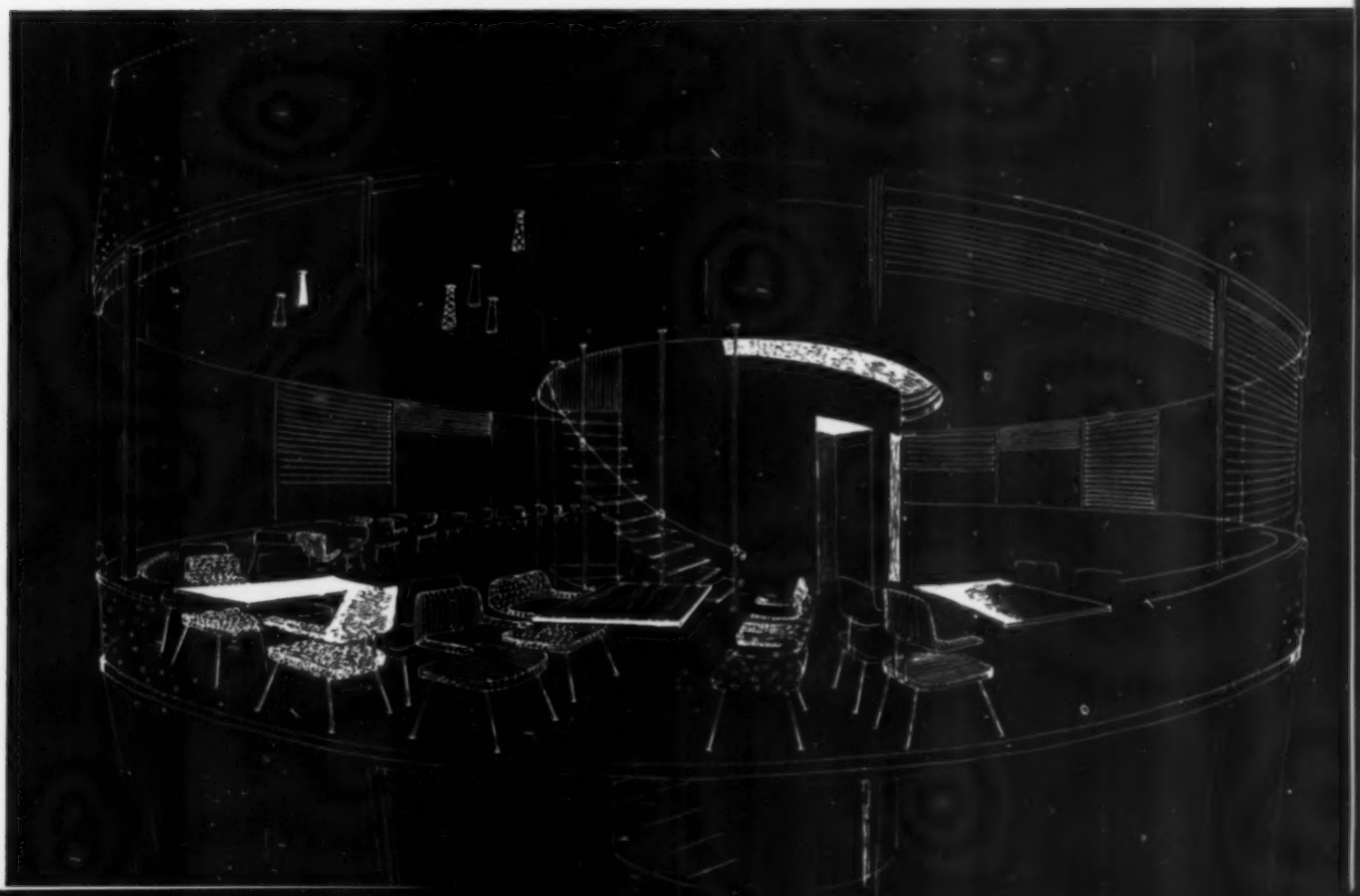
SECOND FLOOR



FIRST FLOOR

KNUZ-TV Building, *Houston, Tex. Bailey A. Swenson, Architect; E. W. McMillin, Structural Engineer; J. W. Oder, Electrical Engineer; Robert W. Kurtz & Co., Inc., General Contractor. The program called for studios, transmitter facilities, and executive offices. It also called for provision for a 500- to 600-person participating audience. The steel-framed building is surfaced with laminated panels of asbestos cement, with insulating core, and redwood or aluminum battens. Year-round air conditioning maintains the interior climate. Studio lighting combines fluorescent and incandescent sources.*

TV Tower, *Stuttgart, Germany. Dr. Ing. Fritz Leonhard, Design and Construction; Prof. Rolf Gutbrod, Consultant; Prof. Hertha-Maria Witzemann, Interiors; Dipl. Ing. Erwin Heinle and Dipl. Ing. Siegfried Roesemann, General Supervision. Two high-speed elevators bring visitors to observation platform on top of this reinforced-concrete tower. Two of the four levels (glass-enclosed, pressurized, and cantilevered from the shaft) are devoted to a restaurant* (below); *the others to kitchen and transmitter equipment. Height of the tower, including antenna structure, is 692 ft.*



time-zone station

The fact that television will become an international medium in the not-distant future seems clear. Local networks are already extending branches toward the borders of states, nations, and continents. U. S. networks are now linked with Canada; connection with Mexico, the Caribbean area, and some South American countries is not far off; links to Europe, the Middle East, and Asia can be visualized.

There are certain important difficulties to be overcome before this is practical reality. One of the most important is program transmission, with the complications of time-zone differences, advance-program booking, recording, language changes, and so on—in short, the need for stations where basic differentials of time and language can be adjusted.

The TV time-zone station, therefore, seems to be a vital stepping stone to successful operation of international broadcasting. Only on this principle of central reception and distribution can good coverage and adequate signal strength be assured. Such a station could be designed on the basis of needs such as the folowing:

Facilities for automatic recording of all incoming programs.

Storage of such recorded programs for rebroadcast, at a different time, in the original language, where this is possible.

Dubbing of other languages in original programs, where language differences exist, and storage until proper time for rebroadcasting.

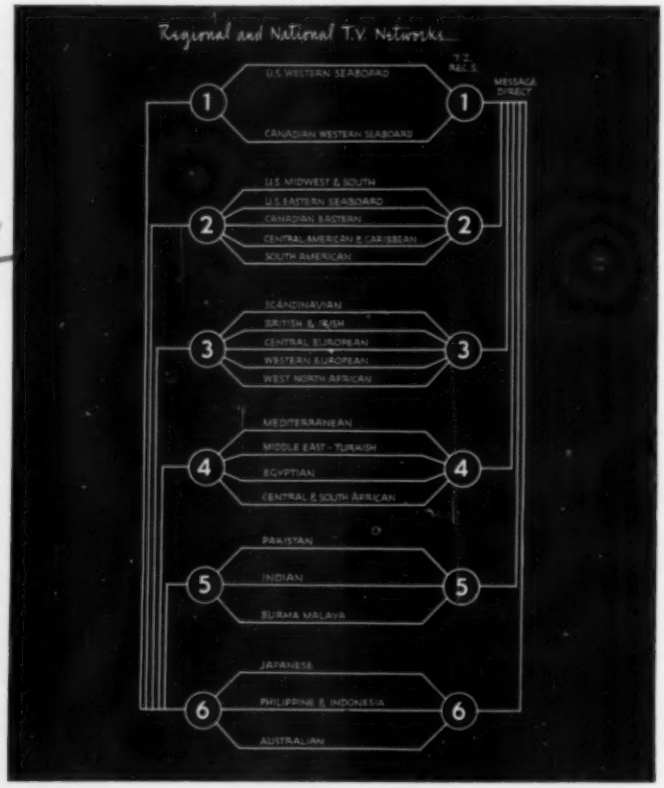
Simultaneous interpretation of certain immediately important programs and special events broadcasts, with or without recording.

Rebroadcast of original programs, with necessary changes made, at appropriate times for various stations and networks.

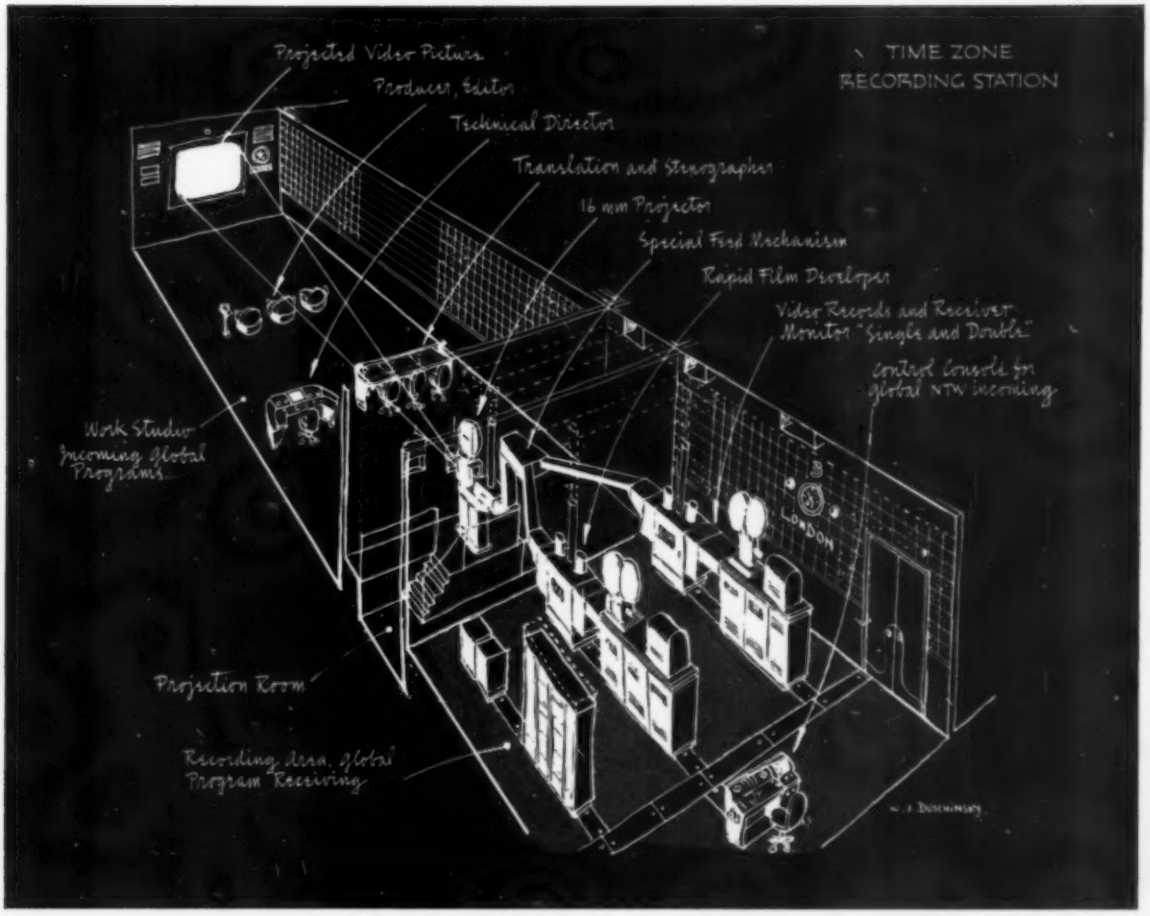
Transmission of programs originating in station's own area to other time-zone stations.

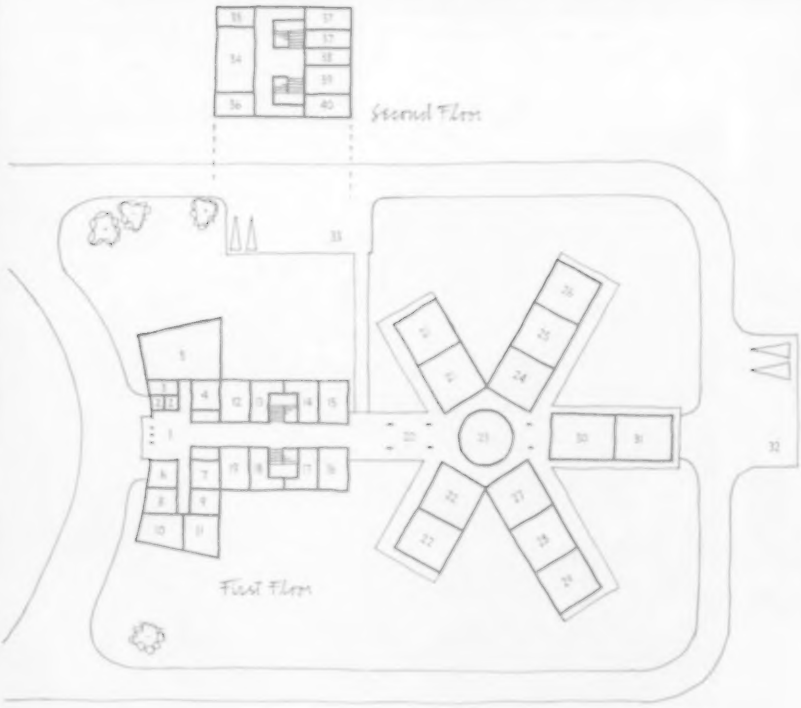
The heart of such a program is the automatic-recording facility. While film might now be the recording medium *(illustration acrosspage)* magnetic tape will probably be used by the time such stations are actually built. Immediate recording equipment would make possible direct editing, with only a few minutes of delay after reception, so that producer, technical director, and translator could use rapid dubbing techniques (as is now done at the UN Headquarters in New York), and the program could then be distributed to regional networks or individual stations. This is the facility that would be used if, for example, a station in Cairo had asked for the recording of a program from New York, London, or Tokyo, to be rebroadcast at a certain time.

The potential value of television as an educational medium, or even as a device for transmission of visual news and basic information, is certain to push its use across time and language borders; the time-zone station will then become a subject for much research to determine economies of space arrangement, plant, staff, equipment, and other facilities.



Charts indicating the time-differentials in various parts of the world and a possible spotting of six time-zone stations for international programs.





Schematic plan for a time-zone station, developed by Dr. Duschinsky, consultant. How one of the highly specialized recording rooms might appear is indicated in the drawing (above).

1 reception
2 interview
3 interview staff
4 interview studio
5 gen. clerical off.
6 admin. exec. off.
7 admin. secretary
8 program exec. off.
9 program secretary
10 technical ex. off.
11 technical secretary
12 network exec. off.
13 network planning off.
14 NTW traffic off.
15 recording admin. off.
16 recording tech. off.
17 general traffic off.
18 library, record, film
19 conference room
20 general waiting area
21 studio, language dubbing
22 studio, announcer, comment.
23 master control room
24 general tech. area
25 tech. gimmick area
26 shop and spare parts
27 kinescope record. room
28 tape recording room
29 storage recordings
30 utility, air cond., heating
31 garage
32 truck parking
33 car parking
34 eating/recreation
35 cafeteria
36 kitchen
37 interpretation work area
38 writers
39 artists
40 visualizers

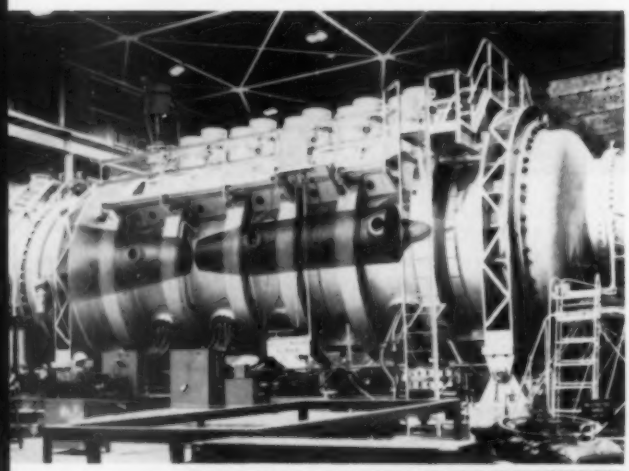
commercial-industrial

The transmission of intelligence for business usage—between the offices and plants of one company, or from one company to others—by facsimile, teletype, punch tape, magnetic tape, or other means, and the interlocking of this communications system with intracompany use of electronic computers, analytical equipment, and automatic-filing systems, is becoming an important part of commercial life. Department stores, transportation carriers, stock exchanges, banks, various manufacturing and processing companies, and other enterprises have already made extensive use of systems now available. Two examples might be cited: the transmission to an employe who needs information about stock inventory automatically computed in a department store; airline ticket-reservations data, centrally and automatically computed, communicated to many points by the activation of a predesigned card placed in the "request" machine.

In industry, rapid communications for either information or control purposes has become a necessity. Here the extent of the system (which may include a large amount of automatic processing through the communications medium) and its specific design, may vary greatly. For example: in an oil company with highly developed communications control, a pipeline may monitor and control a distant valve by means of a radio receiver which activates a motor coupled to the valve; or, this need may be transmitted by micro-wave to a central control point, from which the valve is operated by other communications means.

Business and industrial communications, aside from direct wire and cable transmission, are controlled by Federal regulations, because of the restricted wave spectrum (a large part of which is reserved for government use). Cost of building private systems, and limitations in distance of "jump" between microwave stations (which may be altered by new studies in beyond-the-horizon transmission) have also restrained many companies. It seems reasonable that in the future private business and industrial communications may be combined to form a new network, independent of existing systems, for the use of the commercial public.

In the meantime, with available facilities, many commercial and industrial uses of communications media (such as the ones shown here) are in actual operation.



Interior of jet engine (left), *being tested under various simulated speeds, temperatures, and altitudes, can be observed by TV circuit* (below left). *TV camera is trained on the combuster section of the jet engine to detect any possible defects which might develop during strenuous test.*

Control room (below) *is part of TVA's large Johnsonville steam plant.*

1

2

3

Pocket radio-paging receiver (1) calls key personnel in a building or plant.

Letter-sized Intra-fax machine (2) in department-store warehouse receives shipping order in "picture" form from store sales floor. Machine at right reports shipments.

Automatic voice directory (3), located at various points in a supermarket, employs tape recorder and speaker.

An advanced communications system using a visual call system for doctors and nurses is an important element in the Anderson Hospital for Cancer Research (4-5), Houston, Texas. MacKie & Kamrath, Architects; Schmidt, Garden & Erikson, Consulting Architects.

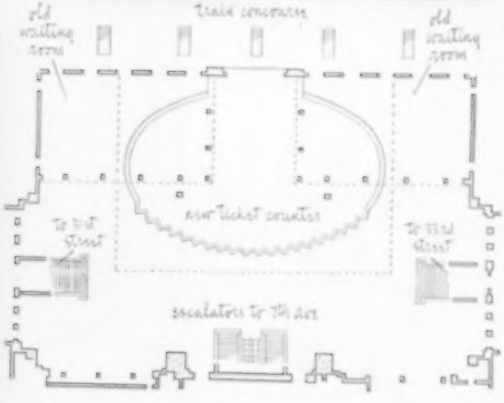
The largest electronic ticket-selling system installed, to date, in Philadelphia's 30th Street Station (6-7), Vincent G. Kling, Architect. A few features: printing (from a matrix) of railroad tickets; facsimile reproduction of reserved-space coupons by "fax" machines that roll out the tickets for waiting customers or may be transmitted to other stations; an overhead "ready sale" board showing available accommodations.

Most recently announced ticket-selling installation, to be built in Pennsylvania Station, New York (8-9), Lester Tichy, Architect; Paul Weidlinger, Structural Engineer. Using closed-circuit TV, each clerk's station (as well as each telephone-reservation desk) will have a TV screen. Customers' requests will be relayed by intercom to a central nerve center, where cards showing Pullman space available will be placed under a camera and appear on the clerk's monitor.

6

7

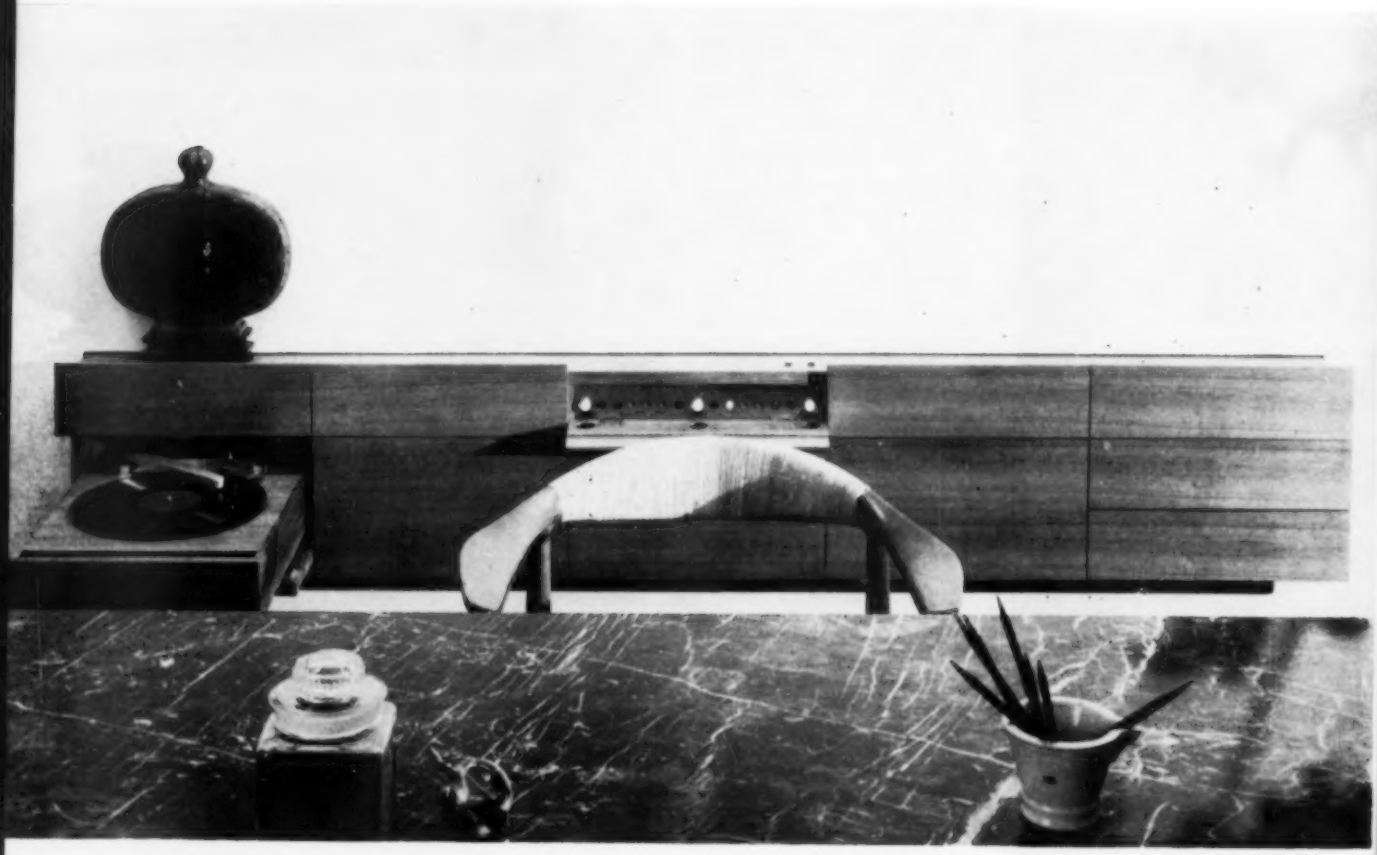
8

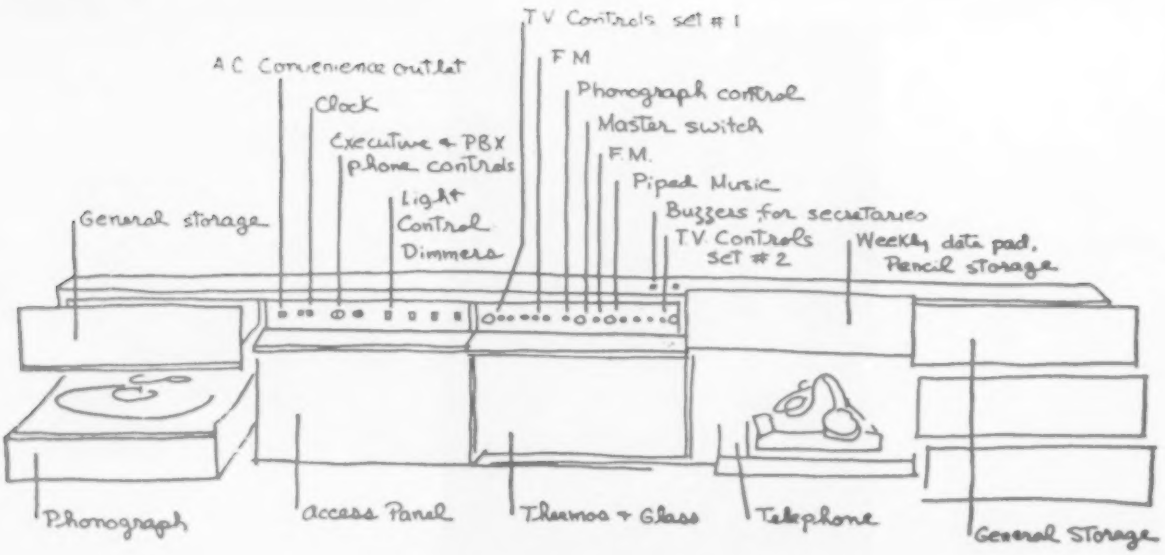


9

4

5




T.V. Controls set # 1
A.C. Convenience outlet
F.M.
Clock
Phonograph control
Executive + PBX phone controls
Master switch
F.M.
Light Control Dimmers
Piped Music
General storage
Buzzers for secretaries
T.V. Controls set # 2
Weekly data pad, Pencil storage
Phonograph
Access Panel
Thermos + Glass
Telephone
General Storage

Executive Office *for Columbia Broadcasting System, Inc., New York. Florence Knoll, Interior Designer. With the increasing demand for electronic devices in modern offices comes a challenge to architects and interior designers to provide well-designed and efficient housing for them. Requirements for this space, the private office of Dr. Frank S. Stanton, president, were necessarily complex and unique, since an atmosphere of simplicity and quality without pretension was desired, as well as a high degree of automatic and electronic control. The nerve center of this room is a control panel* (diagram acrosspage) *directly behind the desk, in which private telephone, buzzers for secretaries, phonograph, master switch, and controls for executive and PBX phones, controls for two television sets (color and black & white), AM & FM radio, piped music, clock, and light dimmers are consolidated. A storage wall of teak with mellow wax finish contains two television sets and ample storage facilities for personal belongings. Other furnishings and materials within this well-articulated space are a gray-and-white marble-top desk with stainless-steel base; an occasional table with white-marble top; upholstered pieces covered with handwoven gray wool and dark natural leather, natural-bamboo blinds; gold Honan silk curtains; charcoal-colored carpet.*

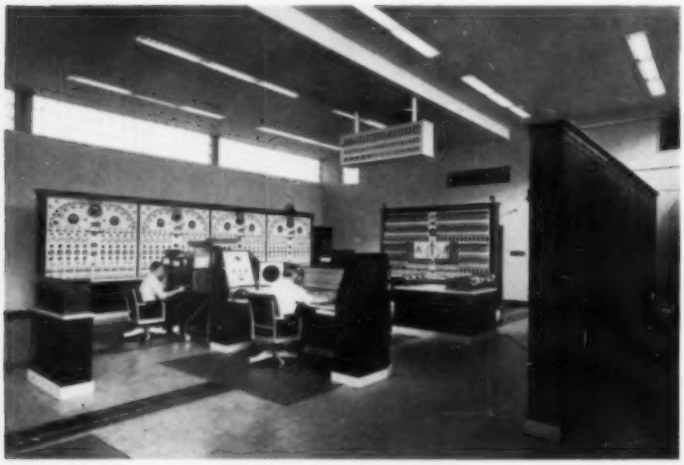
mobile

Mobile communication — the linking of message-sending media with rapid transportation vehicles—has now become an accepted part of contemporary life. From a fixed land station, two-way communications (between the fixed point and a moving vehicle) or three-way transmission (contact between moving objects in addition to relation to the home base, as car to car, or airplane to automobile) are now used by police, tax companies, ship lines, and the various military and civil air-traffic agencies. Purely private and commercial use of the possibilities in this field are subject to control by FCC, to prevent interference with other services, but are perfectly feasible.

Extension of the function of mobile communications readily can be foreseen. Combination with telephonic-communication and electronic-signal systems will open up such avenues of use as highway-traffic control (suggestions have already been made for private automobiles equipped with guiding devices remotely controlled) and direction signaling in large parking areas. As in the case with any of the automatic-control systems today, almost anything is *possible*; the designer will have to determine with his client what is *economical*, and what is truly *useful* beyond conventional methods of communication.

Control Tower (left) *for Grumman Aircraft Engineering Corporation is important element of flight-testing facilities for jet engine assembly plant. Office of Alfred Easton Poor, Architects.*

Latest signaling devices are consolidated in control room (below) *of Atlanta Fire and Signal Headquarters Building designed by Robert & Co. Associates, Architects. In addition to "Charging Board," "Protective Board" and gong controls for the entire city, two large "Operator Pedestals" contain equipment for receiving and transmitting radio communications to stations and trucks. Overhead indicator board shows in-or-out status of every piece of fire fighting equipment in the entire city.*



Experimental gas turbine passenger car (left), *recently shown at GM Motorama, is intended for use on future electronic "autoway." Car is equipped with two-way radio and TV control screen for contact with "autoway" control tower from where car would be guided by remote control.*

Advanced communications equipment made it possible to locate all Los Angeles police facilities in a single, downtown Police Administration Building (March 1956 P/A): *Welton Becket & Associates and J. E. Stanton, Associated Architects. For example* (left), *two switchboards serve the city's street-corner police phones, providing immediate connection with all pertinent departments. The long table beyond is the "complaint board" to which come all calls requesting help or information. An endless belt in the narrow, central trough carries complaints back to the mike room* (above). *From here are made all radio transmissions to patrol cars throughout the city, averaging 8000 daily. Control panels (foreground) continuously indicate what cars are available.*

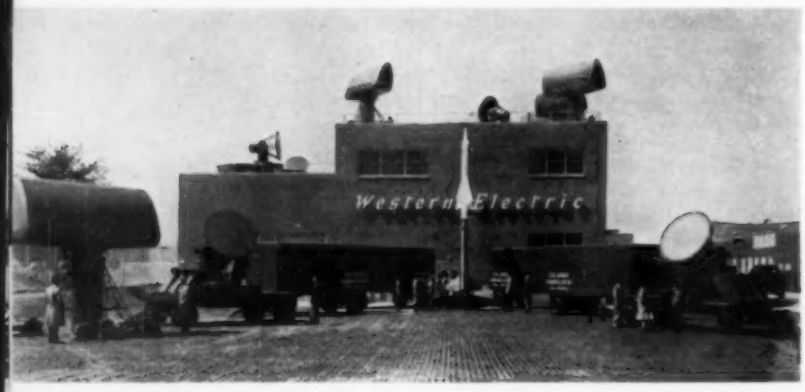
Traffic conditions at remote highway locations may be observed closely with the aid of closed-circuit television equipment (right).

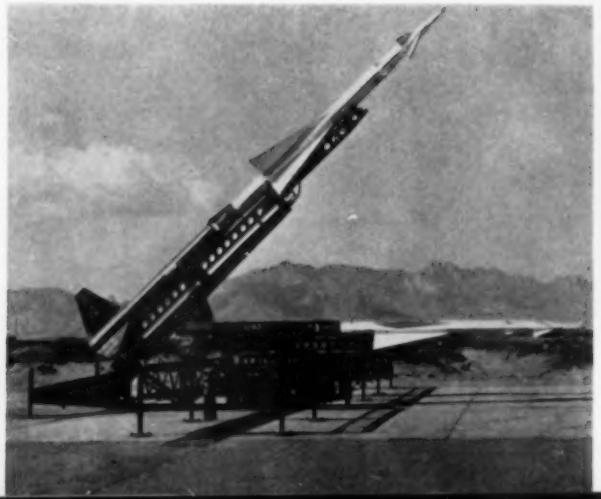
military

Military communications have been developed to such an extent that they constitute today's largest global network—and make a fine point as to the extent to which such a system could be employed for constructive purposes. The three distinctive communications systems of the Army, the Navy, and the Air Force, each functioning domestically and overseas, are co-ordinated through the Chairman of the Joint Communications-Electronics Committee of the Joint Chiefs of Staff. At home, a large amount of the military communications is carried by commercial carriers, an economical system which nevertheless has been criticized.

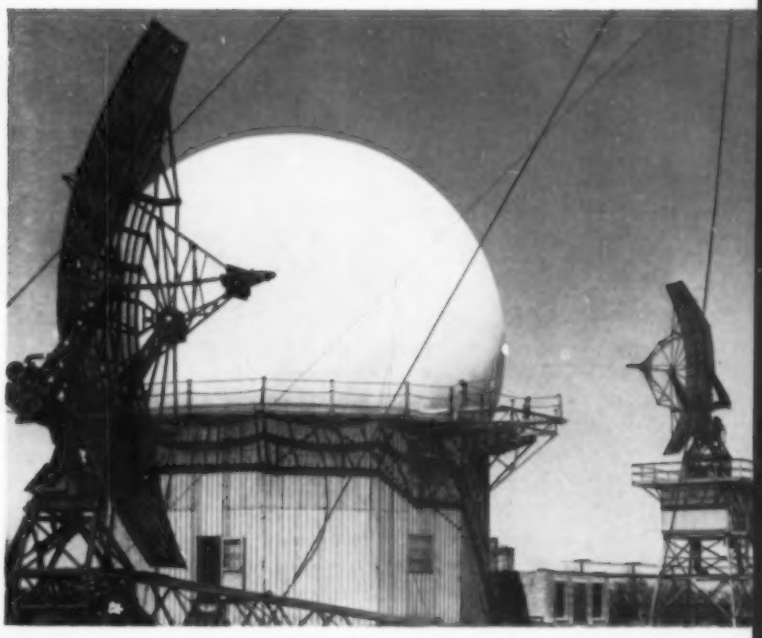
The complexity of military communications is caused by the need for message transmission to and from mobile vehicles, and by the fact that coverage must be worldwide and instantaneous. The Navy, says Rear Admiral Henry C. Bruton, Director of Naval Communications, "has more than 1000 types of ships and military transports which must be communicated with, and . . . 10,000 operating aircraft and over 100 naval air bases and stations." The Navy alone uses a worldwide shore network of six primary communications centers, 16 major centers, 25 minor centers and 360 subordinate centers, all of which are primarily interconnected by teletypewriter, landwire, and radio. Air Force communications problems are multiplied by the fact that not only directive and informative material must be transmitted, but navigation data must also be passed along.

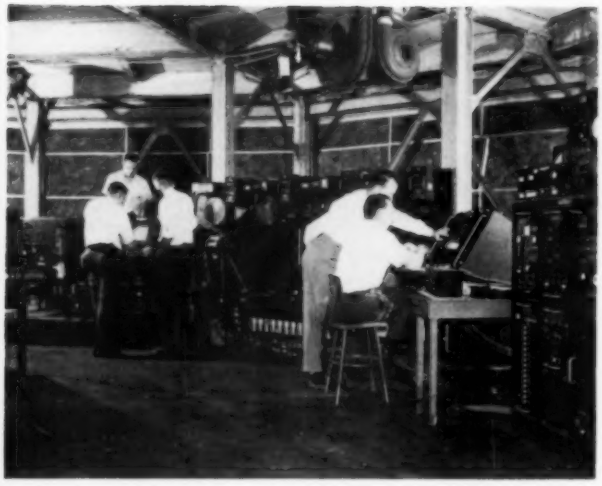
When defensive communications, civil control measures, and counter-message systems keyed to intelligence evaluation centers are added to the military needs, it becomes clear that this major use of all of the communications media available is not likely to level off, but will become ever more extended and will be primary developer as well as user of new electronic devices in the field.





NIKE, anti-aircraft guided missile, requires highest degree of electronic control. Radar mechanisms (left) *track weapon's flight, permitting technicians at control panels* (below) *to maintain contact with missile. When almost in vertical position, booster charge starts NIKE on its supersonic quest for a flying target. After initial thrust, lower portion is expended and missile proper continues toward target guided by its electronic brain.*





New radar height-finder (above left) *detects planes three times farther than previous similar units. Three versions of this height finder are shown* (above): *unit at left is mobile; dome structure, center, houses unit in Arctic climates; radar at right is for fixed installation in temperate areas. Data from radar is fed to control center in radome building* (left) *and then relayed to fighter bases.*

Offshore radar station (right) *for early aircraft warning erected at Georges Bank off New England Coast. Platform of this Texas Tower, so designated because of resemblance to oil-well platforms in Gulf of Mexico, is 200 ft long on a side and 80 ft above water.*

documentary and analytical

Up to this point, we have been discussing primarily the recent developments in communications: the transmission of information from one point to another. Mention has already been made, however, of the link to communications systems of electronic computation and analysis. Here the CELA combination begins to assume its importance. The data communicated can be — often is — material that is centrally recorded, analyzed, stored, and then transmitted and received (later, as we shall see, perhaps acted on) by electronic means and electronic equipment.

A good basic example of this link is the sort of modern banking procedure which is illustrated on the following pages. Here a communications system—closed-circuit TV—is used for verification of signatures, and for transmission to decentralized points of electronically recorded and documented information, which originally has been gathered in a central location (by communications) from various stations.

The electronic equipment which comes into play in such a process can be roughly divided into the documentary types ("memory storage") where a mass of data is received, arranged to some predetermined degree, and stored; and the analytical types ("electronic brains") where a degree of computation and analysis is performed by the electronic machine.

Use of this communications /documentation combination may be as elementary as the central recording, by tape or disc, of dictation received from a number of points. Storage of the centrally received data may be for reasons as simple as the desire for central filing, or the wish to protect data from fire or to remove it to bomb-proof storage points.

Extensions of the combined systems can be foreseen in many types of building, especially when some degree of analysis enters the program. A department store or shopping center may wish to link individual cash registers to a central computer, so that there is always available an inventory balance sheet. There is nothing very complicated, by present standards, in having outgoing sales and incoming replenishments ticked off electronically, so that the balance is immediately available. Insurance companies have been obvious users of such systems, and stock exchanges have provided dramatic examples of the value of electronically computed-communicated data.

Closed-circuit TV speeds banking operations (left). *On request from a branch bank, a balance, customer's signature, or whatever record may be wanted is placed under a football-shaped camera (General Precision Laboratory, Inc.) at the bank's headquarters—blocks or even miles away. The picture appears on the branch-bank teller's individual TV monitor, for verification. Duplicate records are thus avoided, and tellers are never required to leave their stations.*

New York Savings Bank, *Radio City Branch, New York, N. Y. Eleanor Le Maire, Designer; John R. Weber, Architect; Edison Price, Lighting Consultant. Designed to be "cheery, familiar, and friendly," this branch bank is in the forefront as far as advanced electronic-banking equipment and techniques are concerned. For in each of the 10 tellers' stations, arranged toward the center of the floor in sawtooth formation, is a TV monitor screen. Without leaving her desk, a teller can flick a switch connecting her immediately with the main bank, two and a half miles distant, and, in seconds, via closed-circuit TV, view a customer's bank balance, signature, or whatever else may be in question. In addition, each desk is equipped with a National Cash Register accounting machine, so that each teller can handle not only routine deposits and withdrawals, but also sell money orders, print tellers' checks, and write Christmas Club checks—all on the one machine.*

"No barriers, no cages, no private cubbyholes. Everything out in the open," the designers comment on the bank interior. As a background for the tellers' section (and also as a screen for storage space behind it) is a floor-to-ceiling, backlighted screen of sparkling, bronze-anodized, perforated aluminum. The wall area beyond is blue-gray granite; terrazzo floor, beige; marble column surfacing, white; motor-driven, glass-fiber curtains, pearl gray; counters, rosewood, with white marble tops. Acoustical tile surfaces the ceiling. The long ceiling-grill panels (that repeat the perforated pattern of the aluminum wall screen) conceal music-distribution outlets and valve-access panels. A terrazzo stair with bronze railings leads up to an employes' lounge and executive conference room. Bronze-and-glass check counters line one window wall, with an area furnished with chairs for those who prefer to sit while writing.

documentary and analytical

The "electronic brain"—an automatic computer made capable of performing complicated combinations of the basic mathematical functions—will not remain an isolated machine used primarily for research, when its functions are more generally understood. Most of today's calculating machines are a combination of the analogue computer (where mathematical figures are represented in the form of physical quantities as, crudely, it is done on a slide rule) and the digital computer (where mathematical figures are transferred directly into numerical quantities). Their main advantage has been the rapidity with which they can perform calculations in any sequence desired. Now an added advantage is that the self-checking and error-testing circuits can be built in. And, finally, when various input and output channels (receiving the program, delivering the results), programming devices (ways of feeding data to the computer), and memory devices (holding the calculated results for future use) are included in the machine's functions, it is obvious that it has added many practical applications to its abilities to store in coded form information which will be ready for calculating purposes or for further action.

Programming and assembling the necessary facts and submitting them to the calculator may be done by many means such as electric typewriter, perforated paper tape, punched tape, punched card, or magnetic tape and, of course, may be transmitted from distances. These data are converted to electronic impulses within the machine (as, for instance, patterns of magnetic dots on tape) and the calculation is fed back by the reverse operation of automatic decoding into readable characters, which can be processed directly on an electronic typewriter.

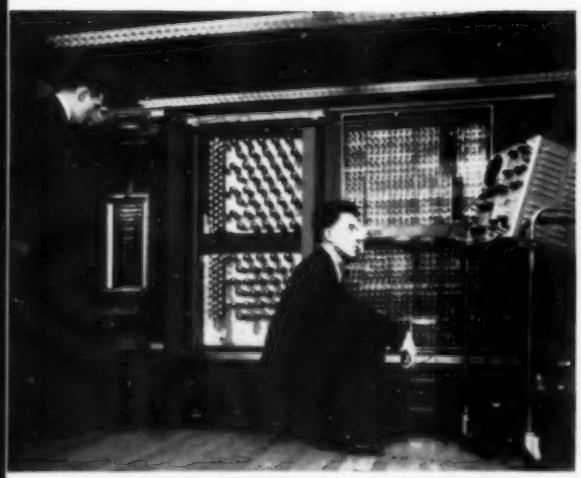
With rapid development in this field, and constant improvements, much of the use of the large machines has been on a rental basis. Some companies have installed basic equipment, to which other machines can be added when they are needed. For example, to a basic digital computer might be added, for special use, a converter which would allow the computer to work with a punch-card system of programming. In addition, it is possible for an industrial organization to link together a network of computers located in separated areas, by means of teletype and leased wires, or microwave systems, so that they can operate as a co-ordinated multiple network.

Allocation of computers to military use has been well documented. In civil and mechanical engineering, optimum design, safety factors, strength of materials can be quickly and accurately calculated. In business, materials requirements and purchasing, customer and management demands, as well as inventory, and co-ordination of (separated) parts manufacture and subassembly may be easily computed and controlled. In the process industries, analyses from various points can be transferred into useable digital form. Wherever electro-data processing can replace tedious hours of statistical calculation, provision for these machines is likely to become part of the building-design program.

Electronic differential analyzer (left) *in use at New York University College of Engineering. Problem has been set on panel. Knobs above are potentiometers that set various values for equations.*

Electronic computer (below) *is intended for use in assessing damage for the Federal Civil Defense Administration following an actual attack. Facts and figures on casualties and damage to target areas would be fed into the Univac computer to obtain correlated data on the situation in all parts of the U. S.*

Magnetic-disc memory device (right) *serves offices in storing business information.*



Electronic Data Processing Machine (top) *is the latest instrument for high-speed processing of commercial data and solving of business problems. A similar Electronic Data Processing Machine* (above) *was designed for the handling of large-scale scientific and engineering problems. Both installations are located at IBM's Data Processing Center in New York. Eliot Noyes & Associates, Architects.*

New building at GE's plant near Cincinnati, Ohio (see also page 93) *houses giant electronic computers* (top and bottom, left) *for jet-engine design. Utilization of the two machines, (both rented for an approximate annual fee of $1,000,000) influenced the structural and mechanical design of the new building to a considerable degree. To maintain rigidly defined limits of temperature and humidity in which computers operate best, the building is equipped with two 110-ton steam ejection refrigeration units. To prevent electrical flashovers in the computers, air is electrostatically filtered. To handle heavy electrical load the building has its own 750 kva power substation. To reduce noise in the computer rooms, walls and ceilings are covered with acoustical tiles. For flexibility in placement of computers and ease of rearranging underground electrical gear, wood floors are 4 inches thick. A. M. Kinney Associates, Engineering-Architectural Consultants.*

A room carefully designed to accommodate punch-card machines (right) *at RCA's Cherry Hill Laboratories in Camden, N. J. Vincent G. Kling, Architect.*

signal and alarm systems

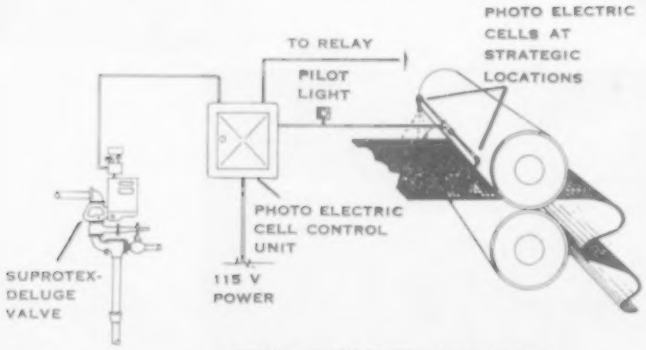
In addition to the more complicated calculating and analyzing devices, electronic impulses can be used quite simply to trigger an alarm system or to signal an activity. Best known of these systems is the photoelectric-cell method by which an object interrupting the path of the beam activates an alarm or signal. Another method now used is the ultrasonic-intrusion system, which relies on a generator producing an ultrasonic pattern in the area to be protected. Any object entering this coverage field changes the pattern and sets off an alarm. The system is most effective because it is completely invisible, and any form of intrusion is detected. A third means is known as the capacitor system; it relies on the principle of a changing of the magnetic field if a body is near the instrumentality. The capacity of the body induces changes in the detection capacitor, which trips an alarm or signal system. Especially in smaller areas, the method is most effective. Architects and engineers faced with design problems which require security or protection systems will have to decide which is best suited, or whether several can be effectively combined.

CELA becomes a design factor in many signal and alarm systems. The detection of an intrusion is not enough; setting in motion corrective measures by the co-ordination of such a system with central-control points handling other electronic communications, mobile radio contact, or automation processes is equally important.

Automatic logger (above) *tabulates essential variables, together with time of recording, on electric typewriter. Also produces punched-tape output which may be used to feed computers for automatic material-balance and yield accounting. Between tabulations at fixed intervals, logger can scan all inputs and if conditions are normal, no recording occurs. If conditions become abnormal, an audible alarm is sounded and a recording cycle is initiated.*

Electronic lock is operated by small card which is inserted in slot opposite door knob (left). *Proper entrance card will reflect radar waves from electronic lock device to open door. If wrong card is used, an alarm bell rings. In this demonstration, a match is being held below a heat-sensitive thermostat of an electronic fire-detection system* (below) *designed for hotels, apartment houses, and office buildings. Strategically placed thermostats signal over heating to control-board apparatus.*

This flash- or flame-detection system (left) *is triggered by means of photo-electric cells integrated into fire-control system. Commonly used as a personnel-safety measure, this system has been applied* (as shown, left) *to dangerous rolling-mill operations in the production of jet-propulsion powder.*



TYPICAL POWDER ROLLING HAZARD

plant automation

The third factor producing CELA architecture is automation. Automatic controls, automatic processes, and automatic devices as they are developing today would not be possible without the communications methods which control them, and without the electronic systems on which they operate.

There are as many technical definitions of automation as there are experts in the field. On the one hand, there is the social-historian who points out that the first use of a hand tool introduced an automatic process; on the other extreme, is the believer in the second industrial revolution, who defines automation as that stage of mechanical operation where electronic feed-back control self-directs the automatic process.

For this issue of PROGRESSIVE ARCHITECTURE, *automation* is considered simply that degree of mechanical operation where electronic controls become an important factor. The precise point at which mechanization becomes automation does not seem as important for this discussion as the fact that various devices for automatic control, and various manufacturing, handling, and processing operations at least partially controlled by those devices, will affect the design of many buildings from now on.

It is, of course, important for the designer of buildings to understand the degrees of automation possible; in many instances, he will have to work out with his client the economy, the desirability from a production standpoint, and the facilities which will result from any given degree of automation. The *degree chosen* will be the important decision. In an article* in *Harvard Business Review*, recently, James R. Bright listed 17 levels of automation. Without going into the details of his definitions, it may be helpful to the designer to list them here, to explain the range of choice which a client, and his architects and engineers, may be called on to make. They are:

1. Manufacture by hand.
2. Work involving use of a hand tool.
3. Use of powered hand tools.
4. Hand-controlled power tools.
5. The power tool in a fixed cycle, performing a single function.
6. Power tools in a program control—sequential functioning.
7. Remote control of power tools.
8. Actuation of a machine by introduction of work piece or material.
9. Machines that measure some characteristic of the object—weight, temperature, dimension, shape, color, etc.
10. Machines that signal when a measurement value reaches a certain area or limit.
11. Machines that record their performance, ranging from mere accounting to measurement of values.
12. Machines that change speed, position, or direction according to information received through a sensing device—the principle of feedback.
13. Machines that accept or discard a product depending on what their automatic measuring discovers.
14. Machines that distinguish between the units introduced and perform separate machining operations accordingly.
15. Machines that examine their performance and automatically readjust themselves to turn out a more nearly perfect product.
16. Machines that continuously inspect themselves and correct their performance while operating.
17. Machines that anticipate their required performance and adjust accordingly (self-guided missiles, for example).

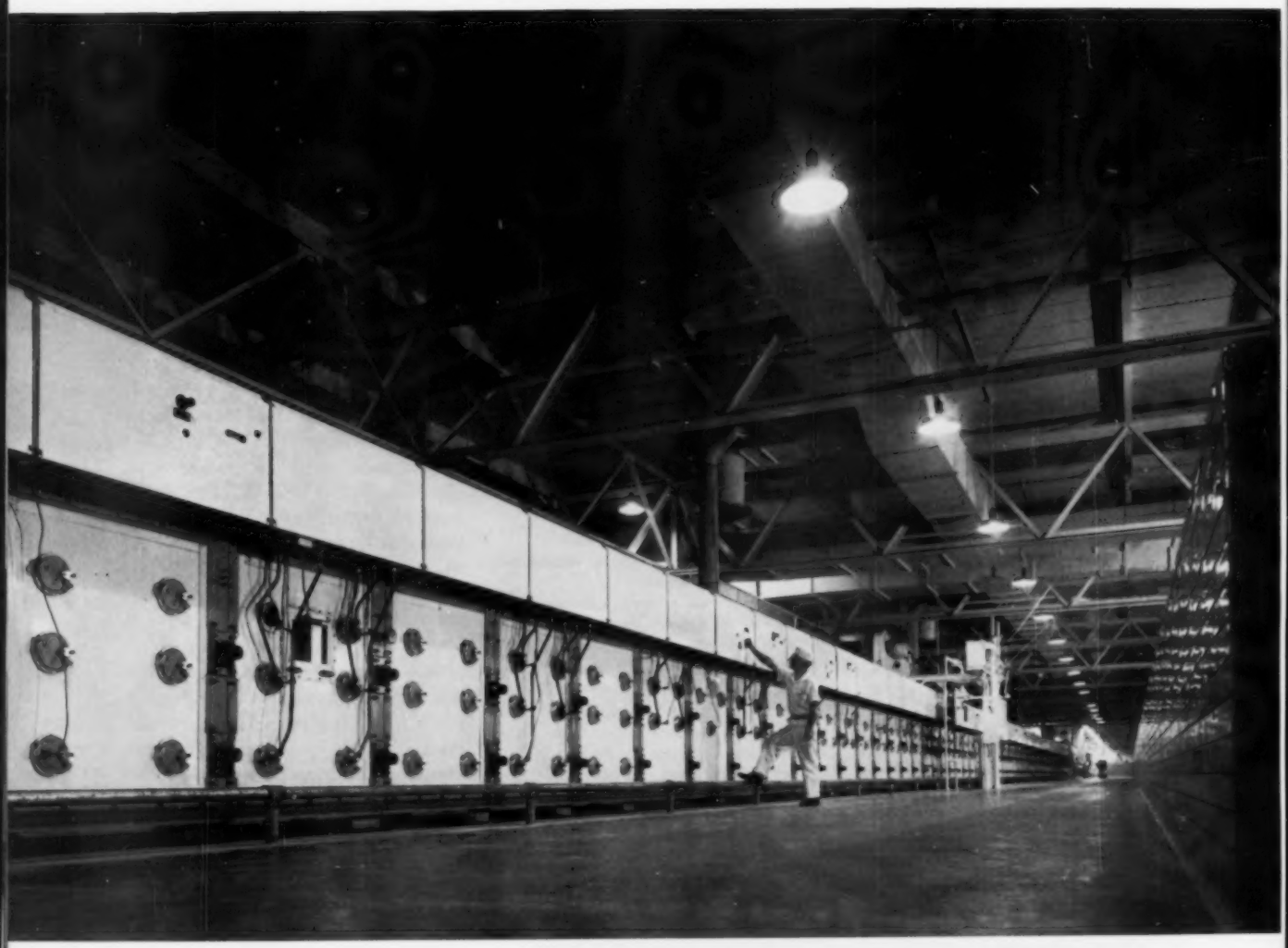
Obviously, there are limitations due to high capital investment, specialized conversion needs, personnel problems, and many other factors. The brutal fact remains that many things can still be done *better* and will be more *economical* in the doing, by hand processes or by simple mechanical means than by higher degrees of automation.

Automation has had its strongest effects in three commercial/industrial areas of activity: manufacturing (plant automation); materials-and-goods handling (service automation); and conversion of basic natural resources (processing automation). The first of these is illustrated on the following pages.

Probably there is not in existence at present a fully automated factory: one in which research, planning and predesign, the design and specification of prototypes, central computer operations, and production design take full advantage of electronic aids, and control by telecommunications media consistently automatic processes in receiving and storage of raw material, handling from one stage to another, parts production, subassembly, main product assembly, and storage and shipping. It will become obvious at once that various degrees of automation are shown in the examples that follow.

* "*How to Evaluate Automation*," by James R. Bright. Harvard Business Review, *July-August, 1955.*

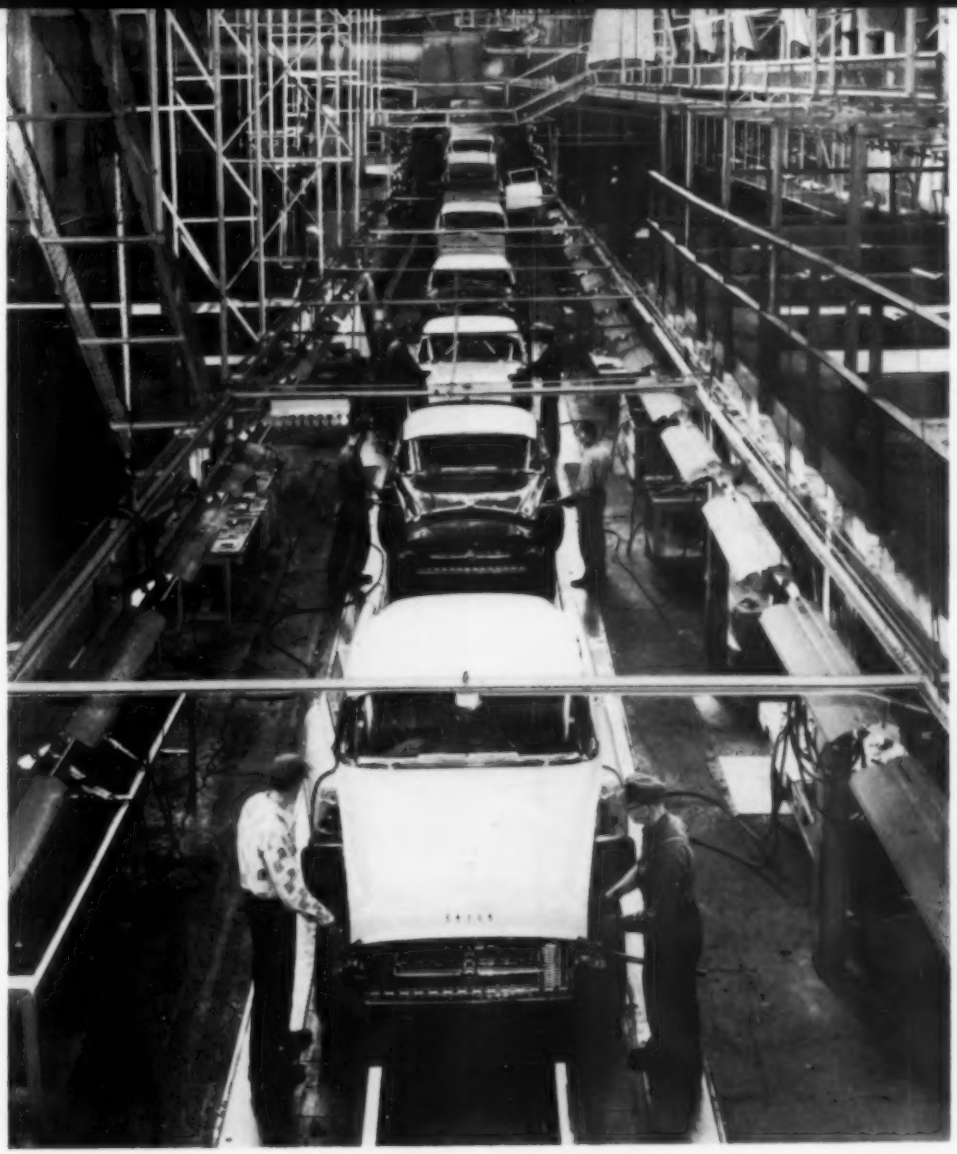
The production line of this TV-tuner assembly plant (right) *is from the receiving door at rear; through inspection and storage areas; through metal-punching process rooms to 15 parallel worktables where TV sets are assembled, repaired as needed, tested and packed; to packing and shipping room near front entrance of building. Architectural Consultants, Architects Associated of New York.*



Sawyer Biscuit Company, *United Biscuit Company of America, Melrose Park, Ill. Skidmore, Owings & Merrill, Architects-Engineers. In this handsome, long factory, crackers and cookies being baked travel continuously through nearly 600-foot-long banks of ovens, with no workers involved, except for the maintenance of the machinery. Exposed steel frame of the building is painted white; walls are gray, glazed brick.*

plant automation

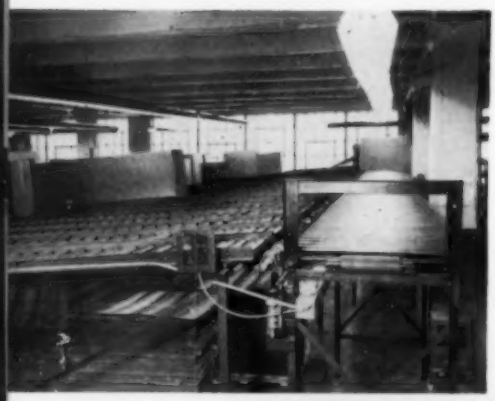
A high degree of mechanization has long been an important factor in automobile manufacture—in this case, 1955 Buicks traveling the assembly line. But notice that many workers are still involved. Complete automation, though conceivably possible, would probably prove to be quite uneconomic.



service automation

While plant automation has been slow to spread from the automobile industry, where it has received its widest application, the automatic handling of services, goods, parts, materials, has been adopted by many companies in many fields of enterprise. Here each problem is different; the program may simply call for pickup at one point and delivery at another, or it may involve movement through various levels, additions to and subtractions from the service handling enroute, or separation into categories or by destinations.

Once more CELA combinations come into play. Communications systems may control the automatic movement, or transmit information as to what has been accomplished. Electronics control systems, tabulating and recording methods, and safety devices may play their part. Whether the "service" is the automatic movement of food along a restaurant's back-counter, the transference of huge packing cases from one point to another, the distribution of packages to be mailed, or the automatic sorting and handling of checks in a bank, the picture will be basically one of a central-control panel, from which diverse operations are automatically conducted.



Automated order-filling system (left) *installed in warehouse of blouse manufacturer achieves economy of space and manpower by placing merchandise in stock, picking, consolidating, packing, sealing, and routing it without manual intervention. Control panels* (below) *direct cartons to order-filling racks and program operation of automatic case-sealer. Pereira & Luckman, Architects.*

Waiting time for orders is greatly reduced at this lunch counter (right). *Each waitress (one per bay) has tel-autograph device that transmits customer's order to kitchen. When order is prepared, it is brought by belt conveyor to waitress' station: signaling device automatically announces that order is ready for customer. Office of James E. Edmunds, Jr. and Ketchum, Giná & Sharp, Associated Architects.*

Order-filling area for immense wholesale drug warehouse serving 3000 customers with almost 35,000 items. "Towveyor" line pulls carts from one section to next. Shelving unit (left) *demonstrates rear-feed principle which assures complete rotation of stock. Aisle for picking is open and order fillers are not impeded by stock replenishment men or loose cartons. Robert Montgomery Brown, Architect.*

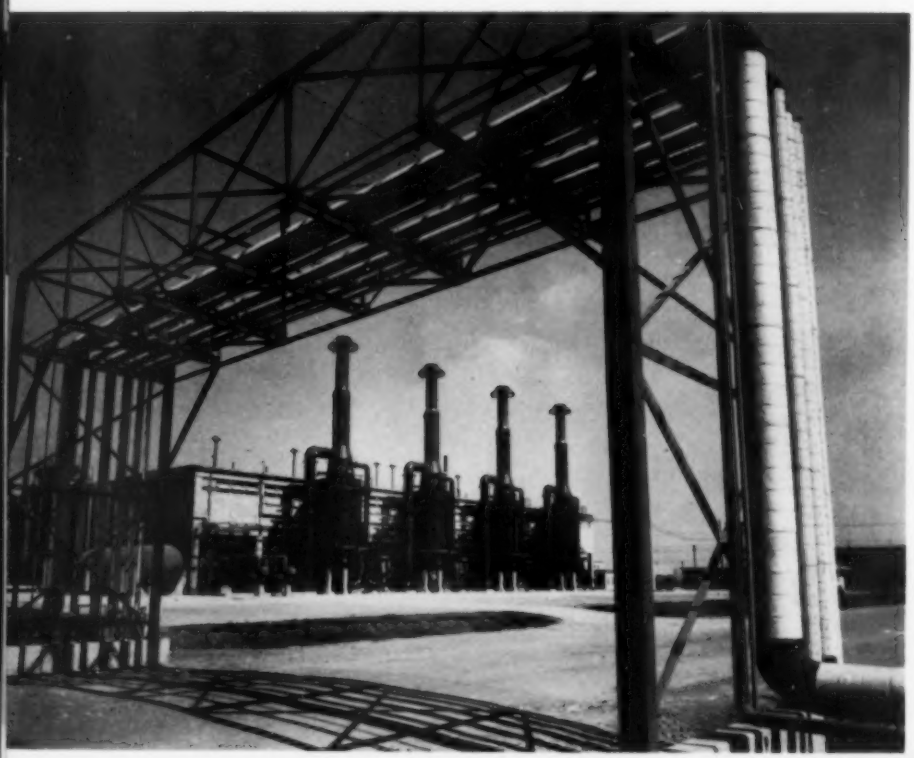
Dispatcher at book warehouse (left) *places each order on weighing machine and marks shipping charge on invoice. From each side of dispatcher conveyor belts extend to the packing areas. From the packers, parcels move on belt to final inspection and stamping for postage charge. Kahn & Jacobs, Architects.*

processing automation

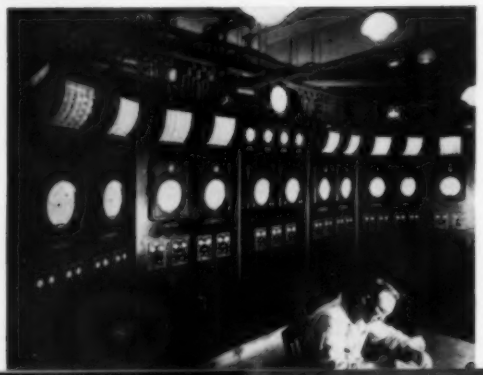
In what are often called the "bulk" industries — chemical and petroleum production and refining, gas and, of course, electro-dynamic power harnessing—automatic mechanisms play a large and ever-increasing role. Here automatic feed-back systems (that almost-ultimate automatic process by which the automatic operation guards and reports back on itself) watch over many processing stages, transmit data for constant and instantaneous recordings of the process, and thus direct impulses which automatically correct or change it without stoppage. Oil, gas, and power companies use remote control for their refining and pump stations and junction equipment, with private or leased channels as the transmitting medium. Pumping stations along a pipe line can be centrally as well as locally controlled.

There are few examples as yet of the next (obvious) step: connection of this automatic-control system with a computer operation which will handle the critical questions of supply and demand, channeling, pressure control, and many other operations based on assembly and analysis of data. The more complex the decision that must be made, the more quickly and accurately it can be automatically analyzed and directed in this field.

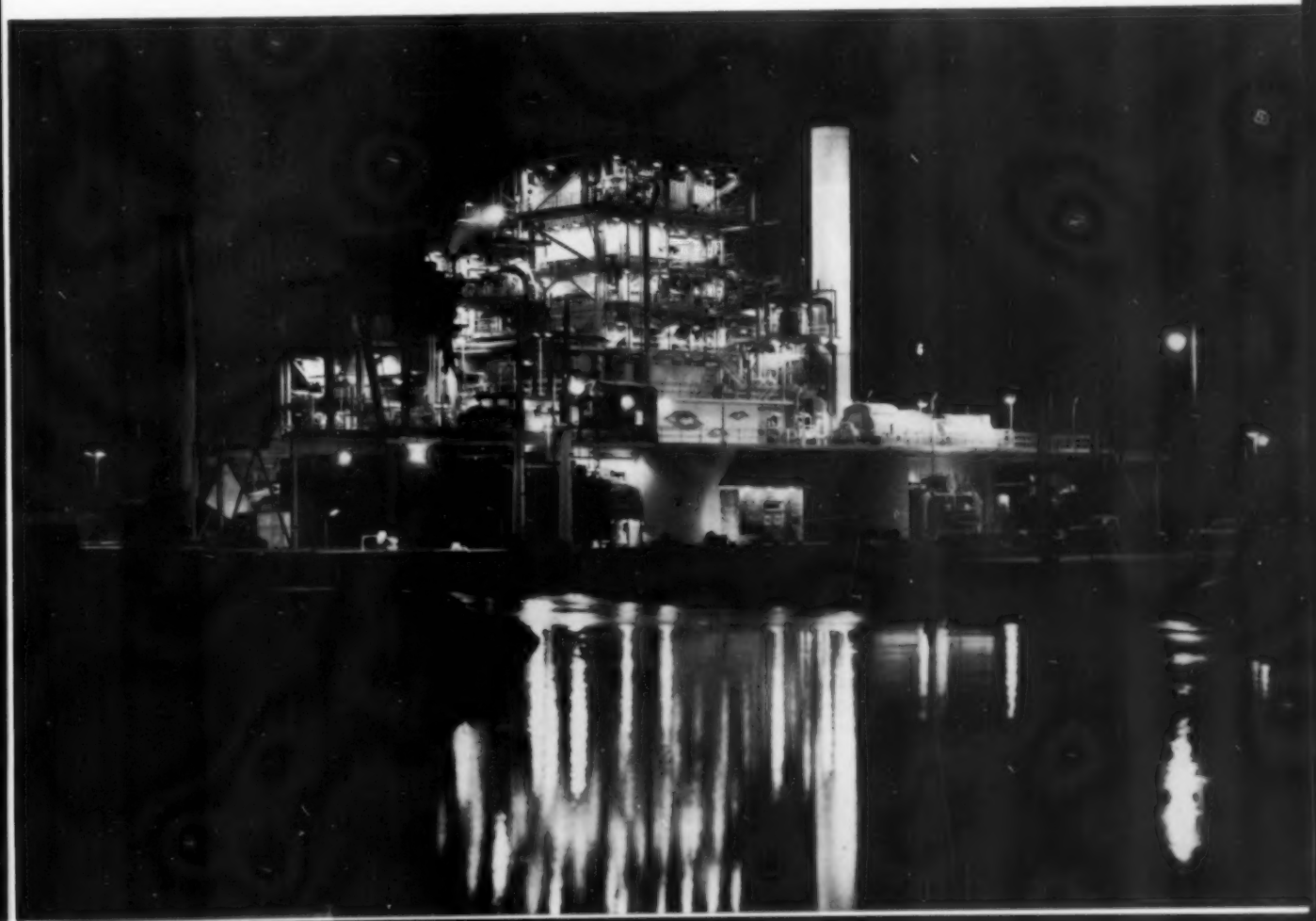
As nuclear-energy power plants develop (almost half of our electric-power potential may be produced by atomic energy in 20 years) automatic processes will increase in use. From fuel processing to waste disposal, economy as well as personal security will demand automatic controls.



The joining of buttadeine, styrene, and other essential chemicals to produce synthetic rubber is a manufacturing process involving precise control of temperature and pressure. The plant illustrated, south of Los Angeles, Calif., was built by the Ford J. Twaits Co., Construction Engineers; J. Gordon Turnbull, Inc., Consulting Engineers. New structural forms inevitably result from functional housing of such specialized processes.



A major element in the Salt River Power District development, this 100,000-kilowatt, electric-generating plant occupies 15 acres of a 47-acre site, near Tempe, Ariz.; Bechtel Corporation, Engineers-Constructors. An "outdoor" type plant, with no building enclosing turbine or generator, the installation uses natural gas as fuel. Centralized control brings both visual and written reports of operations to a central-control room (right). *A mechanical console board and vertical gage board are at left of photo; electrical control board right. Only five men a shift are needed to operate the entire plant.*



automation devices

It is not necessary to turn to the basic industries to see widespread future application of automation. Many devices in many fields, some of them now on the market and a few in general use, will spread the benefits — and, undoubtedly, misuse and over-use—of automatic controls, to many human activities. Automatic, electronic, elevator controls are one example of useful application. Automatic processes in use in many parking garages are another. Temperature controls and heating methods, quality controls of various sorts (even on home equipment) are appearing. Many of the electronic devices in common usage are of a simple, recording nature (telephone call recorders, for example), but some have gone beyond that to provide automatic action (as the now-common heat-control thermostat); it is reasonable to suppose that many other CELA devices, combining the electronic recorder with the communications carrier to activate an automatic result, will be rapidly developed.

Architectural imagination might well indicate to manufacturers in this field areas in which such devices would be useful.

Automatic Parking Garage, (above *and* top right) *Los Angeles, Calif. Kenneth N. Lind, Architect. Average parking time at this garage has been reduced to 38 seconds per car, thanks to a parking elevator which operates as a traveling joist. A projecting dolly moves cars in and out of their parking stalls. Cars can be locked by owners since all operations are done mechanically by elevator. Structure is of reinforced concrete and masonry.*

Starterless and operatorless elevators are now serving a few buildings; most owners of this type of equipment however still are forced to employ starters and operators on the theory that the public is not yet ready to place full confidence in this electronic development. Elevator shown (below) *also has voice that instructs passenger at various stages during the trip—announcing floor number, emergency, etc.*

control tower

Telecommunications Control Tower designed by Dr. Duschinsky as a model for display at the International Trade Fair Exhibition in Tokyo, Japan, February, 1954.

Anyone actively engaged in the CELA field of communications, electronics, and automation realizes that a closer integration of the three related developments will lead to increased technological efficiency and a stronger impact on social and economic growth. Out of such an integration will inevitably come *special types of buildings*, for the planning of which new criteria will have to be considered.

The pages that follow attempt to show some of the buildings and building complexes that may result from these new requirements (one, the time-zone broadcasting station, has already been discussed). Perhaps the first and the most necessary will be a control station of some sort. On this page is shown a Telecommunications Control Tower; on the following spread we indicate a scheme for an industrial Command Building, co-ordinating the three CELA activities.

Co-ordination of facilities and, to a certain extent, correlation of data transmitted and received are the reasons for the Control Tower. The structure would act as regional distributor and collector for the following services: telephone, telegraph, teletype, radio and TV broadcasting, telemetering, remote-control industrial communications, various mobile communications activities, and weather forecasting.

These various facilities are organized (in the model shown) on a series of floors decreasing in size as the tower rises. The lowest level would house power room, utilities and garage. On the second floor would be placed transmitter and rack equipment for local distribution of AM and FM radio and TV signals. The third floor would provide space for telephone and telegraph terminal exchanges. On the fourth floor would be the control room for the power companies and microwave communications; and the fifth floor would contain terminal equipment for utility and power microwave remote controls. Sixth and seventh floors would be given over to mobile communications: police, fire, and security forces; doctors and ambulances; air-navigation control. On the ninth floor would be a microwave-relay platform, with its equipment, and the top level carries a TV, AM and FM antenna array, with other antennas used for transmission and reception of mobile VHF and UHF signals.

Not every region would require all these services; in some places a number of the activities could be combined. In every case, however, there will be certain planning requirements peculiar to this new type of building. A favorable location, for example, would be one with sufficient elevation for good coverage of the region by most types of signals. There must be an independent power supply to guarantee uninterrupted operation. Generally the isolated location of these stations will demand careful planning in respect to personnel and maintenance of the facility. The sites selected may imply severe climatic conditions which must be taken into consideration. Since the armed forces and civilian defense organizations may use the facilities, and since police and fire protection are involved, what might be called logistical supporting operations (co-ordination so that failure of one operation will call others into play) becomes a matter of social necessity.

command building

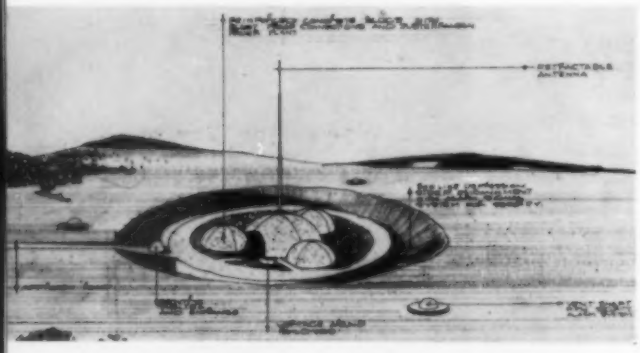
One of the totally new building categories to be produced by CELA considerations is the industrial Command Building—a central telecommunications control point, where computers and analyzers are concentrated, where direction of the industry's far-flung communications system is maintained, and where, ultimately, a large amount of automatic control of the industrial process will originate.

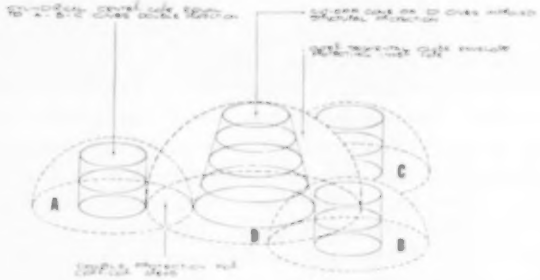
A few industrial concerns already have private communications systems, although this is restricted by FCC rulings (which many believe have resulted in a monopoly in common-carrier communications). However, even over present carriers, and by direct wire contact, it is not only feasible but well-nigh necessary for a large, decentralized, industrial operation to have a communications-control point. Since much of the information communicated will have to do with processed data, the next logical step seems to be a concentration of electronic equipment at this point also. And finally, since the result of the communication will very often be action in the manufacturing, service or processing parts of the company, the control of automation activities should, logically, be concentrated there as well. A number of large industrial corporations are now studying the program for such Command Building; a number of others, particularly in the processing industries, already have such centers in embryo.

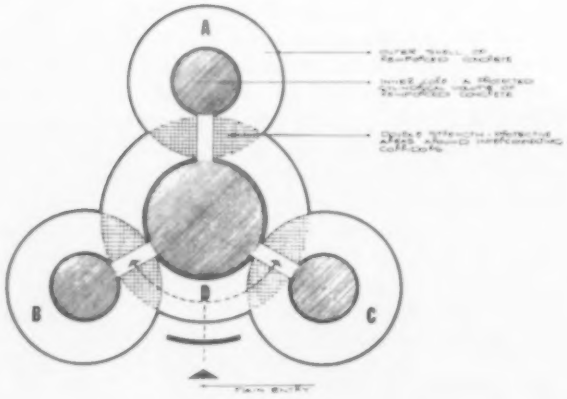
Illustrated on these pages is a Command Building designed by Dr. Duschinsky as illustration for a study he has made for the Chrysler Corporation. The design is by no means meant to be final; in his report he said, "the sketches have been made to stress the fact that all facilities should be planned on an integrated basis . . . the computer center, the telecommunications center, the memory and general storage and information center as well as the transmission and reception center are arranged in a closely knit pattern . . . the transmitter and receiver area has the central position, being the largest unit in equipment as well as in floor area."

In submitting this long-range study, Duschinsky made the following remarks, which seem to sum up the need for such Command Buildings: "Administrative advantages are obvious . . . (it will be possible) to keep under constant observation the operation, without losing sight of the over-all picture . . . availability of immediate information, both over instantaneous transmission as well as the recorded system will be a source of improved efficiency. . . .

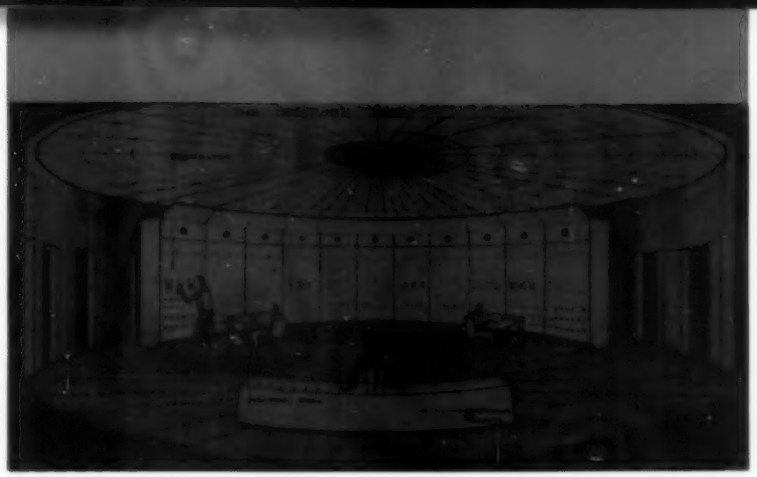
"In a national emergency," the report continues, "the center will prove to be an indispensable means of keeping management informed. . . . Management is only as effective as information transmitted and received through telecommunication can make it."



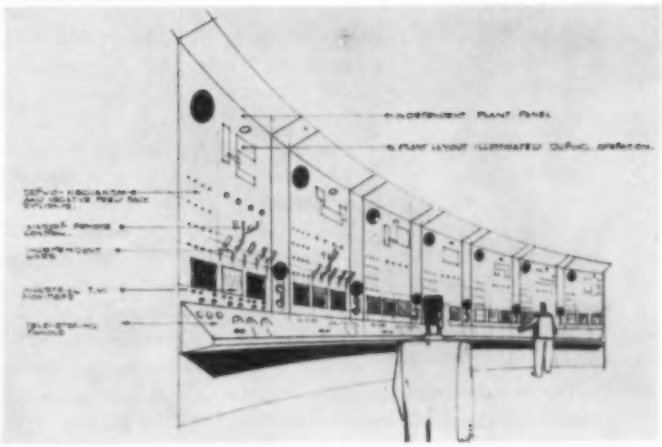


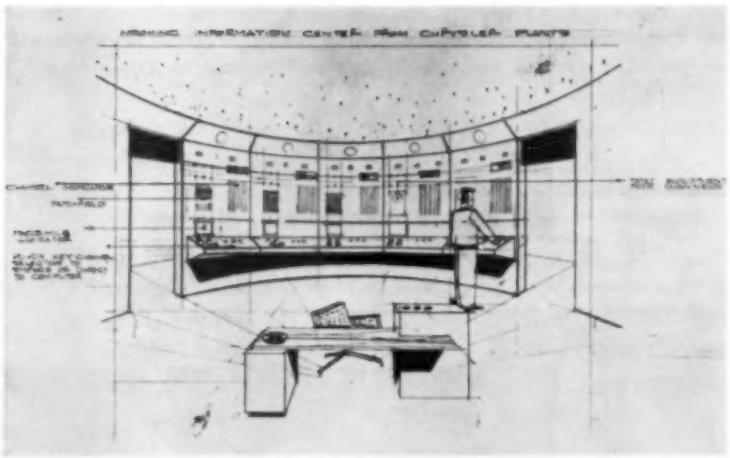


This proposal (above) *for an integrated telecommunications center was prepared for the Chrysler Corporation by Dr. Duschinsky. The center dome, the largest unit in this compact building cluster, houses transmitter and receiver areas. Arranged around this center core are the computer center, the telecommunications center, and the "memory," general storage, information center. As suggested in schematic diagrams* (right) *each reinforced-concrete dome will have a cylindrical core, also of reinforced concrete, for added protection. Corridors linking these buildings will be doubly strengthened and protected against possible enemy attack. "The closely knit group," writes the designer, "will permit extremely simple ducting and trenching of cable runs, eliminating long transmission lines, establishing simple installation and maintenance. This, in turn, will influence operational procedure and generally will lead to economy in staff employment."*



Major element in the computer center is the circular computer room (above). *An administrative office is directly above. Portion of telecommunications center* (right) *shows control panels of servo-mechanism and negative feed-back systems; master remote control; independent lines; industrial TV monitors; and telemetering panels.*





Incoming information is received at this center (left). *Equipment includes channel indicators; facsimile indicators; punch-key channel selector to storage or computer; and testing equipment for channels. Consoles* (below) *provide electronic and magnetic storage of memory information for distribution to computers as well as sources other than Chrysler and outside telecommunication systems.*

educational buildings

As a final forecast of new types of buildings which can be foreseen as a result of CELA influences, the Editors of P/A and Dr. Duschinsky suggest the Communications Educational Center as an obvious extension of the function of the university.

Such an educational center is not to be thought of in the narrow sense of simply a training place for technicians in the many fields of communications and electronic operation. It could be a facility where classrooms and laboratories designed to suit the use of CELA equipment and techniques can be utilized by all of the schools, colleges, and departments within the university framework. One can visualize here a faculty prepared to co-ordinate and co-operate with other disciplines in the area of electronic aids to learning.

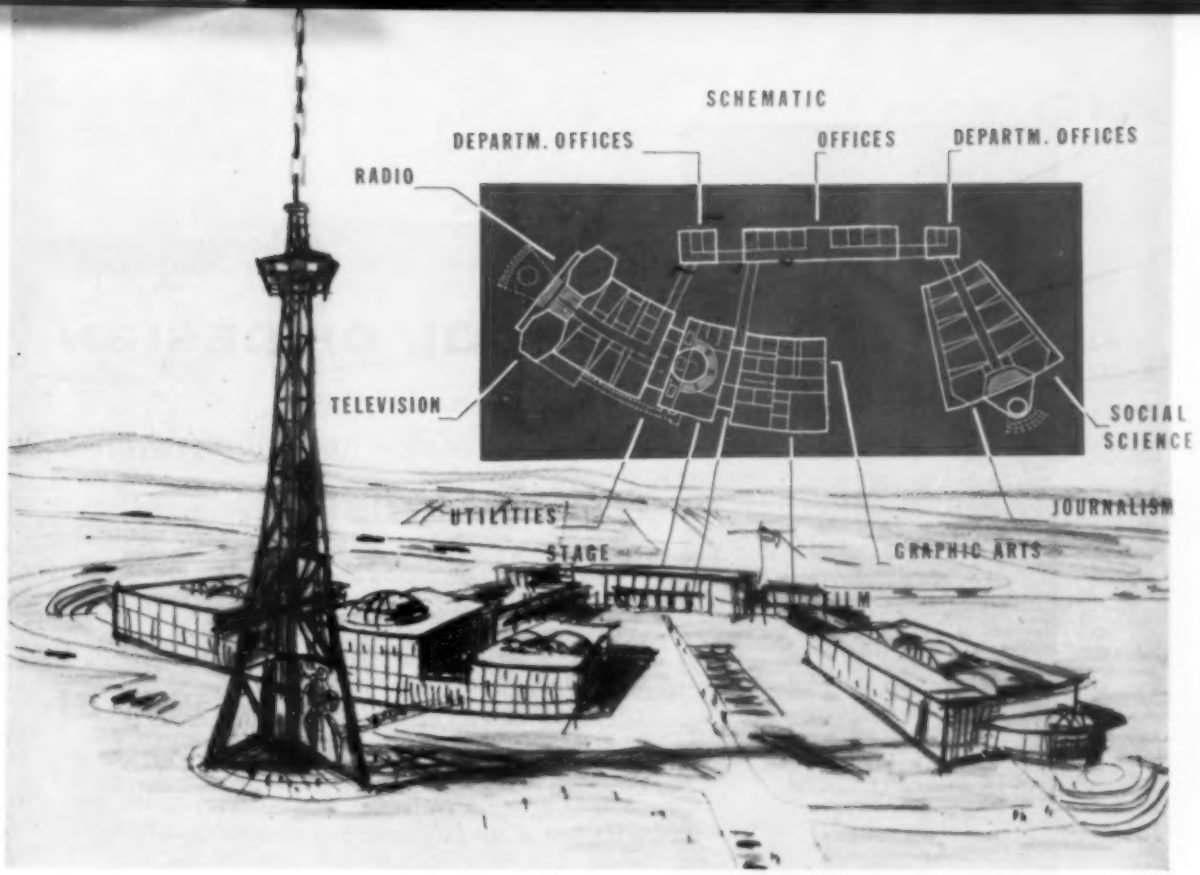
The new electronic media may make radical changes in present education methods. Until recent times, the "stock of knoweldge" (the mass of accumulated information which is considered a necessary background for our operational thought processes) was quantitatively restricted, and its quality was less determined or supported by scientific investigation than it now is likely to be. Empiricism, experimentalism, and the increased accent on scientific data today produce both a quantity and quality of information far in excess of our ability to store it in our memories.

This increased stock of knowledge/data also demands more careful arranging before it is ready to be absorbed. We will have to sort out "intelligence" in terms of its importance and usefulness, on the basis of changing educational criteria. Here is where the "mechanical brain," properly programmed, assumes educational importance.

Further than this, the formulation, evaluation and use of the knowledge so stored and sorted by electronic means, for the purpose of finding solutions and making final decisions, will surely call into play various types of electronic computers. Present-day computers are already capable of making many such decisions, with their input and output organs designed to deal with a large number of variables. We may assume with certainty that in the future we may be able to increase these in-and-out facilities so that we will be able, in many disciplines, to keep up with the increasing amount of information to be fed into the computer and the ever-increasing demand for scientifically correct evaluation.

Obviously, this new approach to education will apply not only to abstract research, but directly to the various professional fields in the arts and sciences: medicine, law, education, architecture, engineering, the social sciences. And even more directly, there will be need for men educated in the fields which comprise CELA itself. At present, many of the engineering colleges are paying special attention to the fields of electronic telecommunications and automation. The next step would logically seem to be the concentration of these new "subjects" into an integrated educational center.

Provisions for the latest teaching facilities in the field of technology have been made at this new Electrical Engineering Building at Case Institute of Technology (left and below). *All laboratories, research rooms, classrooms, and conference rooms have outlets for a closed-circuit TV system, as well as control panels for the supply of power at various voltages and frequencies from the power substation.*



Visualization, by Dr. Duschinsky, of a Telecommunications Educational Center. Emphasis here is on electronics communications media—primarily broadcasting—with a suggestion that social science students might be brought into contact with CELA.

●

Architectural literature contained many warnings about the dangers of *un*controlled mechanization, and the potential benefits of man's control of "the machine," even before automation replaced the production line as a symbol. Frank Lloyd Wright pointed out, in 1901, that "The Machine does not write the doom of Liberty, but is waiting at man's hand as a peerless tool. . . . Although this power is now murderous, chained to botchwork and bunglers' ambitions, the creative Artist will take it surely into his hand and, in the name of Liberty, swiftly undo the deadly mischief it has created." Lewis Mumford wrote recently of "the special problems our civilization faces: of controlling the volume and pressure of technics so that our machines, instead of making man subservient to their functions, will respond, in both quantity and quality, to man's proper needs and goals." And Sigfried Giedion has said, ". . . mechanization depends on man's capacity to make use of it and protect himself against its inherent evils. . . . To control mechanization demands an unprecedented superiority over the instruments of production. It requires that everything be subordinated to human needs."

Editors of this issue of PROGRESSIVE ARCHITECTURE agree thoroughly—but would like to re-emphasize this fact: to use CELA, mechanization's composite contemporary manifestation, as a "peerless tool," for "man's proper needs and goals" is not possible just by wishful thinking. Its functions and its potentials must be thoroughly understood to be used properly by those whose responsibility it is to design man's physical environment.

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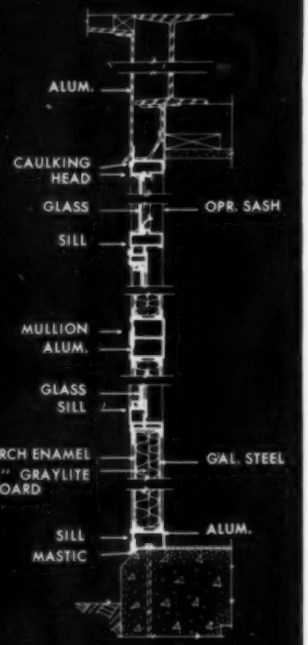

Hodges Manor School—
Norfolk County, Virginia
Walford & Wright—Architects
A & P Construction Co.—Contractors

Once more a leading architectural firm designed a new school installation around Brown & Grist Window Walls.

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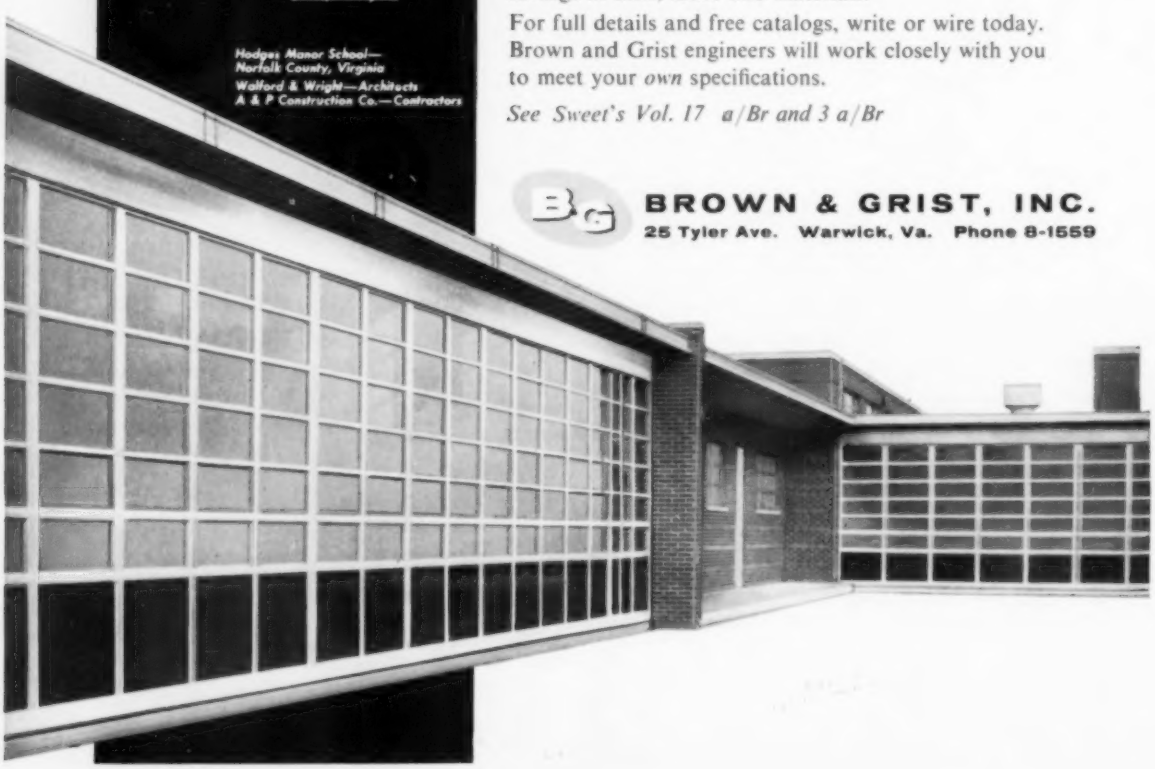


by Ben John Small

spec small talk

precision

From Sweden we learn about the man who could split a hair into 3000 parts. Cars, vacuum cleaners, refrigerators and many other mass-produced articles could not be turned out at reasonable prices had not C. E. Johansson invented his ingenious measurement system. His system provides an easy and regular means of checking precision-measuring tools needed for a mass-production process with an accuracy of ± 2 millionths of an inch. Johansson's gage blocks consist of simple parallelepipedic pieces of steel. With a set of 103 such blocks of different sizes 250,000 combinations are possible; i.e., between 2 mm (0.08″) and 252 mm (10″), measures can be obtained for every thousandth of a millimeter. Every block is polished to such smoothness that it one is put on top of another, their surfaces adhere so firmly that they seem to be one piece and a weight of about 250 pounds is necessary to separate them. They are, however, easily separated if moved sideways. At the beginning, the invention was met with disbelief. The scientists to whom it was first demonstrated thought they were witnessing a conjuring show. Jugglery and nonsense, said the president of International Measurement Bureau. But they became gradually convinced, and the Swedish gage blocks have now won acknowledgment as an international-standard measurement system, indispensable in all industries where precision is essential.

crashing concrete

It matters little to me whether you squirrel my stuff for future reference but this one, my friends, deserves more than passing notice. I am *positive* you will find it useful! (*Positive*, as someone has said, means being mistaken at the top of one's voice.) Are you proud of your forms? Do your forms slip when they should grip? We here in NYC, spurred by a rash of crashing concrete, are looking to legislate the following in relation to forms and details of reinforced concrete construction:

1. Forms shall conform to the shape, lines, and dimensions of the member as called for on the drawings. Forms shall be substantial and sufficiently tight to prevent leakage of mortar; and shall be properly braced or tied together so as to maintain position and shape and insure safety to workmen and passers-by. Temporary openings shall be provided where necessary, to facilitate cleaning and inspection immediately before depositing concrete.

2. Where the height of the shores exceeds 10 feet, diagonal bracing shall be provided for each shore in both longitudinal an transverse directions. In addition, adequate diagonal braces shall be provided at the ends of the framework.

3. The unbraced length of shores supporting forms shall not exceed 50 times the least dimension. Shores shall be adequately secured at the top and shall be properly wedged at top or bottom, if required.

4. Where shores rest upon the ground, adequate mud sills, or other bases, shall be provided to support the shores adequately.

5. Qualified workmen shall be detailed constantly during the placing of concrete to correct faulty formwork and to insure that there is no movement of shores, braces, or other supports. The name of the foreman in charge of the formwork shall be posted in the field office of the contractor.

6. The individual, firm, or corporation doing the concrete work shall be responsible for adequate design and construction of all forms used in the construction of the building. Wherever the shore height exceeds 14 feet, or the load on the forms exceeds 150 lb per square ft, or power buggies are used, or two stage shores are used, the individual, firm or corporation who does the concrete work shall certify to the department that the form design has been checked and approved as adequate by a licensed professional engineer who has had at least five years of experience as a structural engineer, and that the forms have been constructed in conformance with the design which was checked and approved by the said engineer.

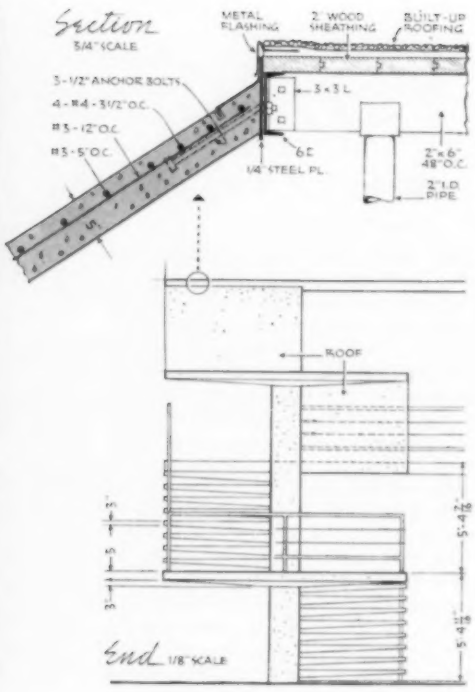
Paul D. Japp

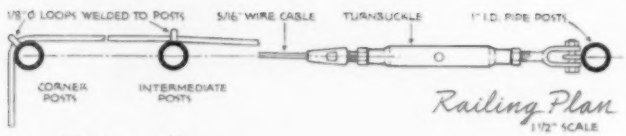
Tom Creighton, would you dim the lights please and play some soft background music whilst I present the first in a series of performance specifications of some folks in our fraternity. Paul D. Japp is fat, forty-five, and famous. He has sometimes been referred to as "The man who knows more people connected with the architectural profession and construction industry than any other manufacturer's representative." The lad attended Cincinnati Public Schools and was graduated from Kentucky Military Institute, Kenyon College, and College of Engineering, University of Alabama. At college, he tussled with tuition troubles by working in funeral homes (ultimately became a licensed embalmer and funeral director). Upon graduation, he continued this work as economic conditions of the country did not afford other employment at that time for a man of his background. (This was the year his background first began to show.) In 1934, he cracked the glass business through the Vitrolite Company in Parkersburg, West Virginia and later went into glass jobbing in Cincinnati. Pittsburgh Corning took him on shortly after its formation at its Pittsburgh Plate Glass Company branch in St. Louis and (1939) he began his career as an architectural promotional man introducing glass block in the Metropolitan New York area. Shortly thereafter, he became district manager of Pittsburgh Corning's New York office and (1948) was boosted to manager of sales promotion and distribution in the general office in Pittsburgh. His activities in this capacity were on a national scale and his energetic and outstanding record won for him (1951) the title of General Sales Manager, the key to the Men's Room, etc. In the field of Foamglass and glass block he has become a real expert, not merely one who avoids the small errors while sweeping on to the grand fallacy. He has been engaged actively in the affairs of such organizations as Local, State, Regional, and National AIA meetings, N. Y. Building Congress, Mason Contractors Association of America, National Roofing Contractors Association, National Association of Industrial Insulation Contractors, Building Officials Foundation, National Glass Jobbers Association and many others. In the field of extra curricular activities, Paul Japp is a director of Washington National Bank, West Virginia Gas and Supply Company, president of Beta Theta Pi National Fraternity Alumni Association, trustee of St. Paul's Episcopal Orphanage. He has served as a vestryman in his church, director of the Downtown Club of Pittsburgh, and has handled successful campaigns for charitable organizations such as the Salvation Army, Cancer Drive, and the Heart Fund—really a nice guy—holds his liquor well too!

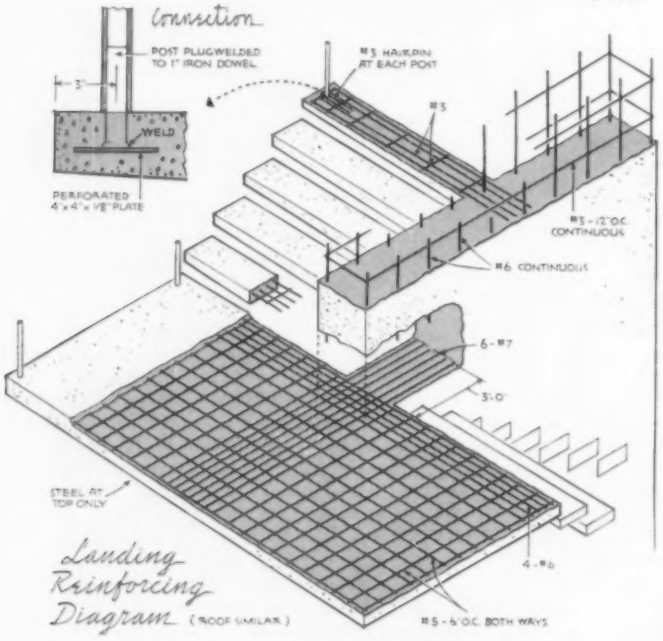
p/a selected detail

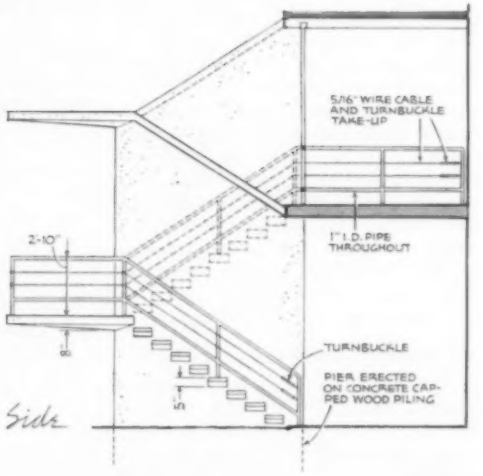
outside stair

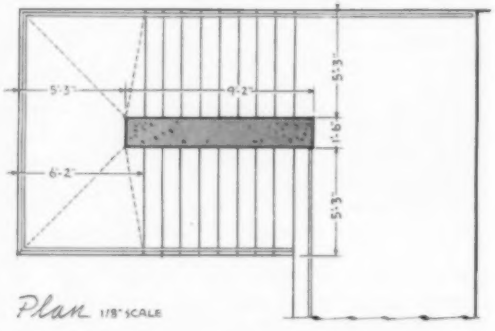
FRANK LOTZ MILLER







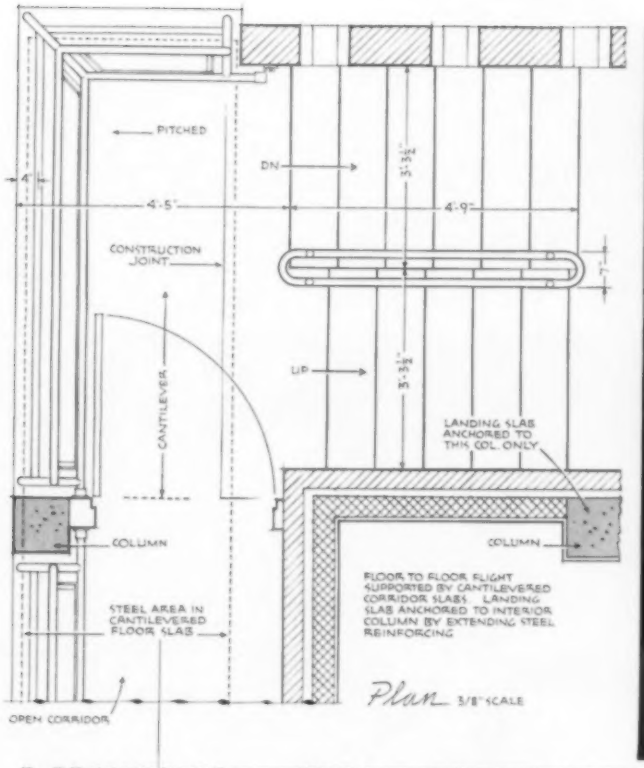


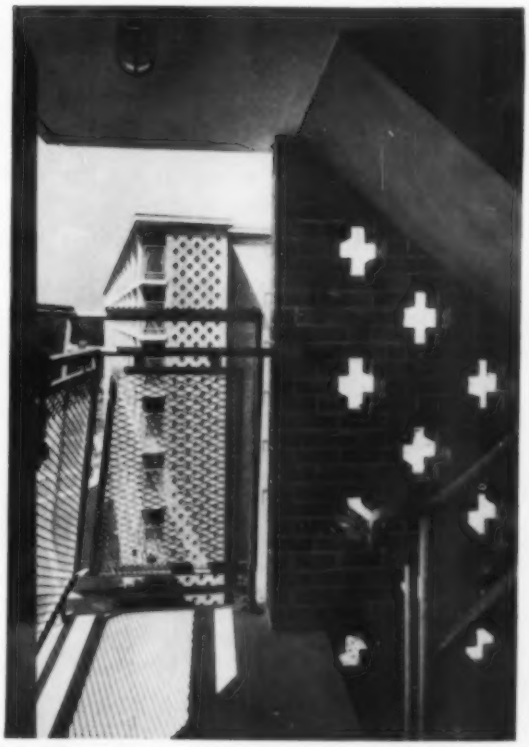


ELEMENTARY SCHOOL, New Orleans, La.

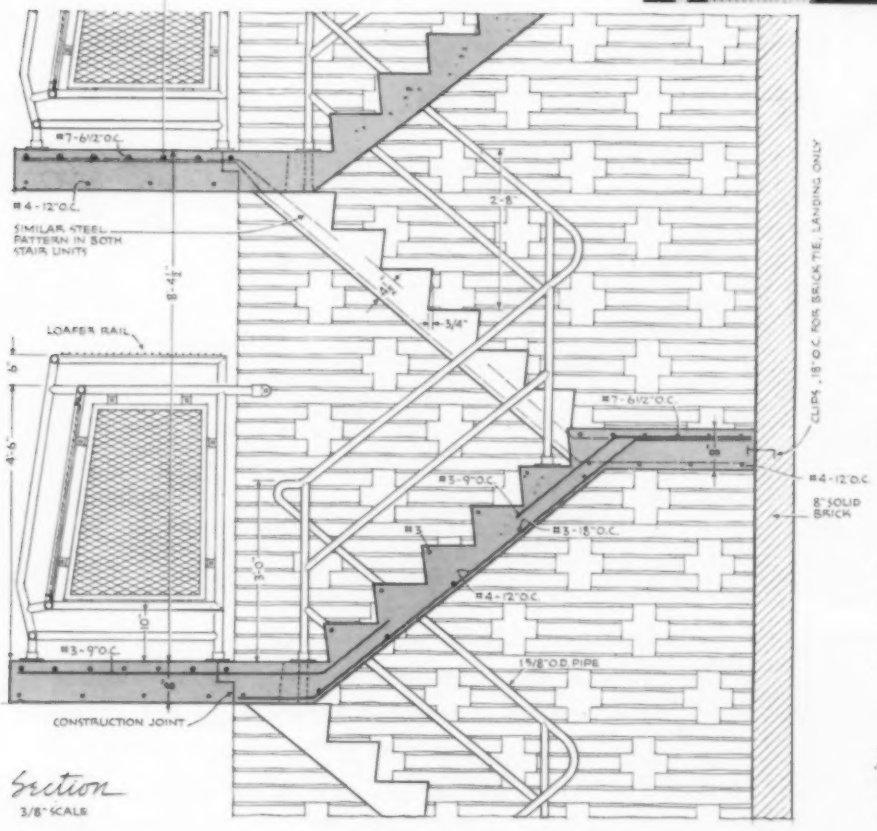
Sid Rosenthal, Architect; Charles R. Colbert, Associate Architect

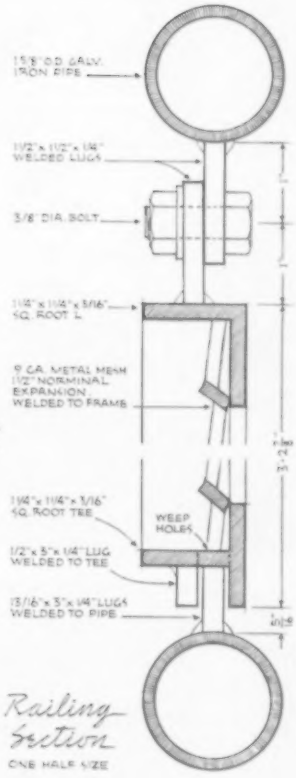
stair enclosure





GOTTSCHO-SCHLEISNER




1 5/8" O.D. GALV. IRON PIPE
1 1/2" x 1 1/2" x 1/4" WELDED LUGS
3/8" DIA. BOLT
1 1/4" x 1 1/4" x 3/16" SQ. ROOT L
9 GA. METAL MESH 1/2" NORMINAL EXPANSION, WELDED TO FRAME
1 1/4" x 1 1/4" x 3/16" SQ. ROOT TEE
WEEP HOLES
1/2" x 3" x 1/4" LUG WELDED TO TEE
13/16" x 3" x 1/4" LUGS WELDED TO PIPE
Railing Section
ONE HALF SIZE

PUBLIC HOUSING, Stamford, Conn.
William F. R. Ballard, Architect

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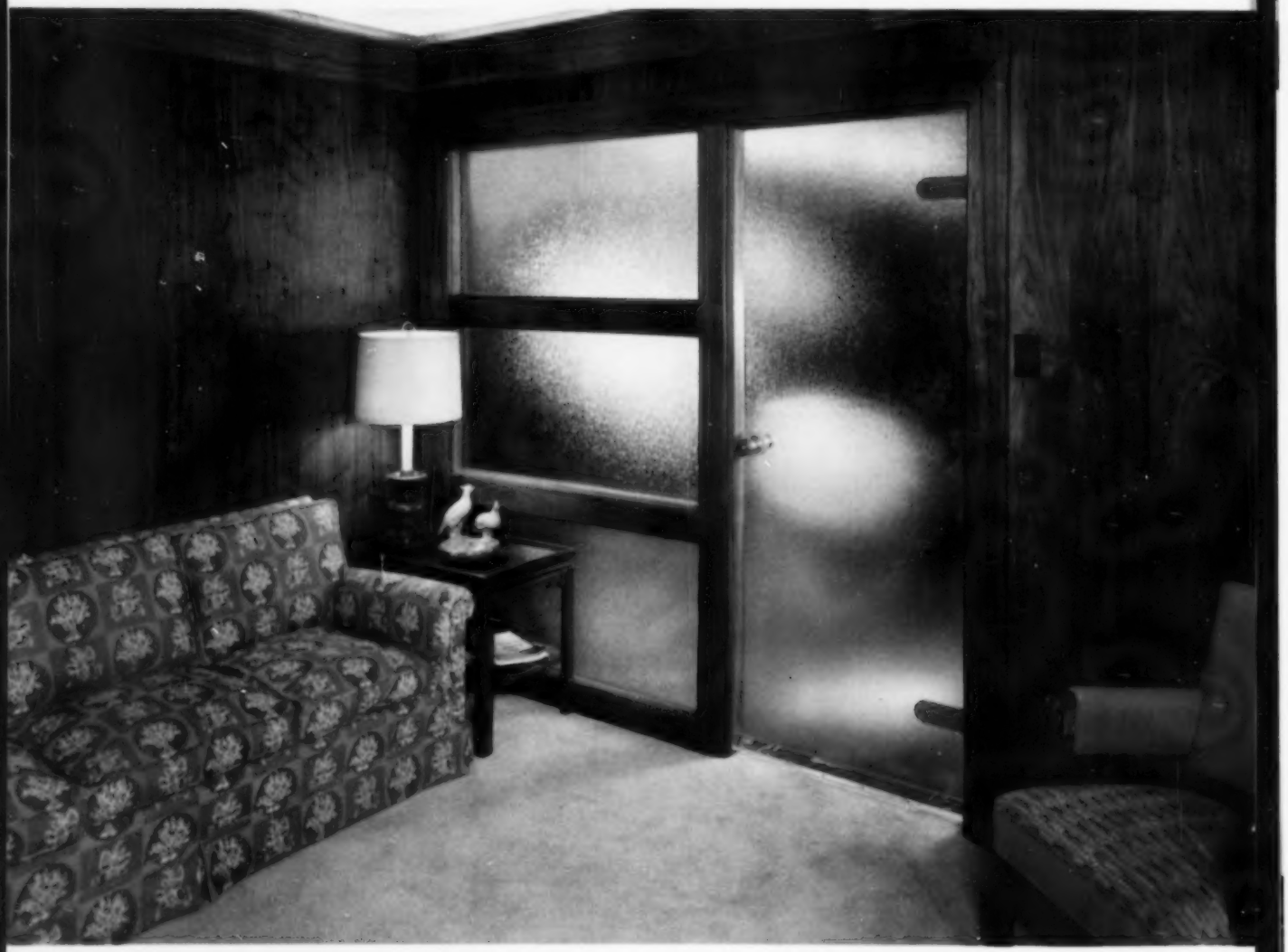

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Product display area in 250 Park Ave., N. Y., offices of the Superior Electric Company of Bristol, Conn. Exhibit, designed by Herman Pickens of Rundbaken Displays, East Hartford, Conn., presents Luxtrol light-control equipment and industrial voltage-control apparatus, all operable for demonstration.

Louise Sloane

cela: interiors

Adapting our IDD section to the theme of this issue – the interrelationship of communications, electronics, and automation as they affect planning and architecture – we have chosen three examples of interior design in the areas of communications and electronics.

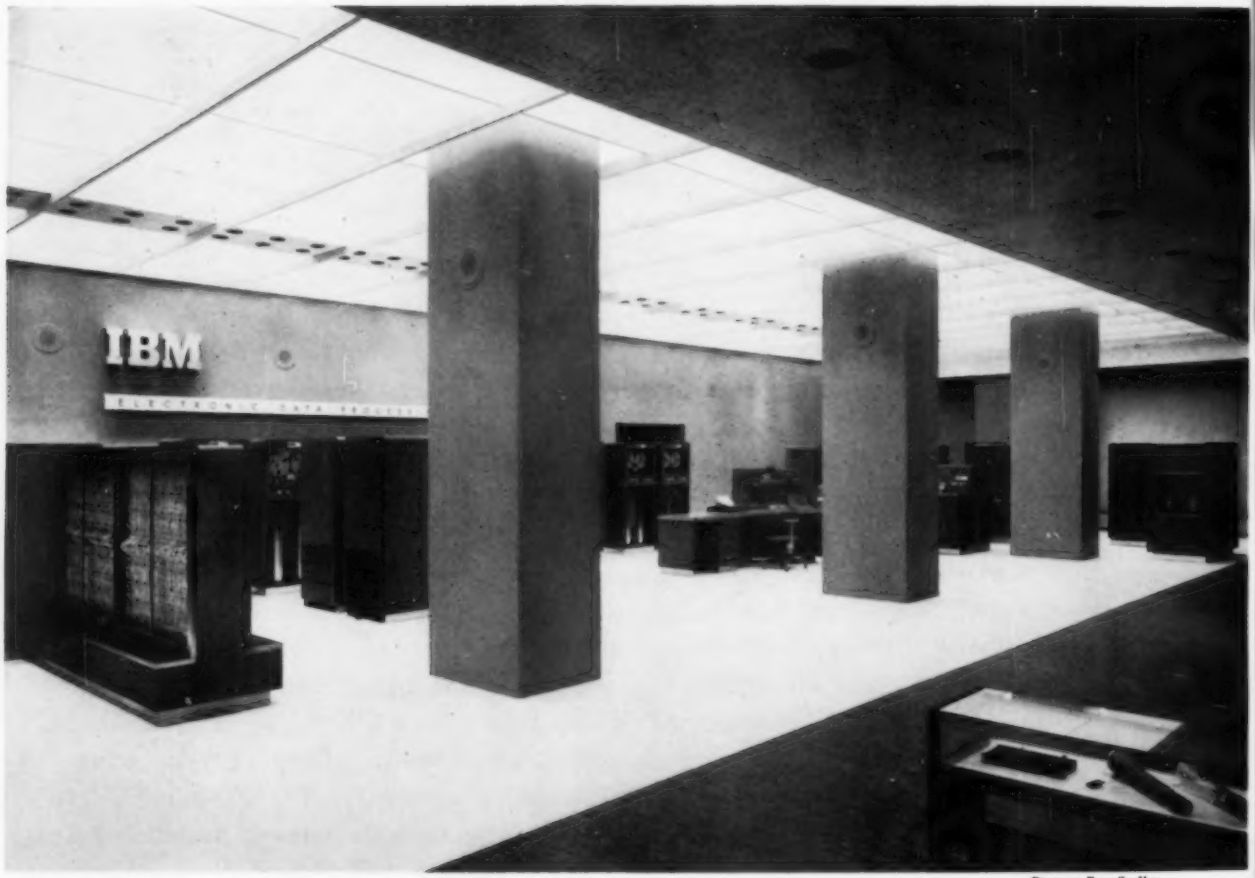
Eliot Noyes' challenging assignment – to showcase the newest giant electronic brain for International Business Machines Corporation as a stimulating New York presentation to the general public–is brilliantly executed. With theatrical flair, controlled by impeccable taste, he has starred the machines themselves in a setting that makes creative use of color and light for dramatic effect. Colors that are vivid and vibrant are played against colors that are subtle and quiet, each set of color values providing a striking counterpoint for the machines on display. Engineered lighting, that changes as the exterior light varies, animates and humanizes the complex of "thinking machines."

In designing the interiors of Radio Station KTAR, Phoenix, Arizona, Architects Lescher & Mahoney regarded sound control as the conditioning factor, and keyed their total design to this practical necessity. For warm contrast to cool tones used on exposed sound-conditioning materials, they chose natural wood surfaces (flat-sliced walnut, select red birch), walnut-toned rubber-tile flooring. Built-in seating, planting, and textured fabrics contribute to the semiformal design.

Climatic orientation, the service aspects of the company's business, and rapidly-changing space requirements conditioned the design, by Pace Associates, for the General Telephone Company in San Angelo, Texas. Since air conditioning was a "must," economy indicated an open plan, and from this followed the need for sound control, achieved in selection of acoustical ceiling, wall and flooring materials. Neutral background colors are accented by brilliant color introduced in upholstery fabrics. Private offices and conference rooms, as well as public areas, are furnished for inviting comfort.

cela: interiors

client	International Business Machines Corporation
location	New York, New York
architects	Eliot Noyes & Associates
associate architect-in-charge	Hugh Smaller, Jr.
interior designer-color consultant	Kathryn Smallen
lighting consultant	Richard Kelly
lighting engineer	Edison Price



Photos: Ezra Stoller

lighting and color dramatize electronic machines

data

Design Theory: Design problem was to create a dramatic interior to function as an "electronic-data processing center," and to introduce to the public the newest IBM giant electronic brain, the 702 Machine. The machine is on view through windows day and night in its continuous round-the-clock operation. Interior lighting may be made more or less brilliant depending on the amount of daylight outdoors, and dimmed to lower intensities for night viewing. The adjacent reception area was designed to give a more intimate view of the 702 Machine and at the same time display other electronic products by IBM. In this area, the lighting changes to a geometric pattern of downlights recessed in the ceiling, affording both ambient lighting and certain highlights on objects displayed.

Color Plan: To offset the complexity of giant machines, a brilliant red wall was used as background, with a white floor, and completely illuminated ceiling. Vibrant and simple use of color dramatizes the presentation of the machines, with whites, off-whites, medium grays, and darker grays as subtle background; and four cobalt blue chairs for accent. The deliberate effect is a startling and brilliant abstract "painting" of a giant electronic brain. In the adjacent reception area, gray carpet, walnut walls and desks, natural leather-and-polished-chrome chairs, and white marble tables create a natural-upon-natural background for the colors and patterns of the smaller machines.

doors and partitions

Glass Doors: "Tuf-Flex"/ Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.

Partition: polished plate glass in stainless-steel frame. Trio Industries Inc., 1095 South Ave., Bridgeport, Conn.

furniture

Pamphlet Display Shelf and Table, Typewriter Tables: designed by Hugh Smallen, Jr./ Theodore Engbert, Inc., 329 E. 29th St., New York, N. Y. and Beacon Artisans, Inc., 333 E. 26th St., New York, N. Y.

Reception Desks: Lehigh Furniture Corporation, 16 E. 53rd St., New York 22, N. Y.

Leather Chairs, Marble Tables: Laverne, Inc., 160 E. 57th St., New York, N. Y.

Side Chairs, Secretarial Chairs: designed by Eero Saarinen/ Knoll Associates, Inc., 575 Madison Ave., New York 22, N. Y.

Display Cases: designed by Eliot Noyes/ Roswell Snyder, 505 E. 72d St., New York, N. Y.

lighting

Louver Ceiling in Machine Area, "Parlite" Spotlights, "Darklite" Recessed Ceiling Lights in Reception Area, "Parlite B" Window Display Lights: Edison Price, Inc., 180 Center St., New York, N. Y.

Ceiling Lights for Reception Area: "Ellipsoidal Klieglite"/ Kliegl Bros., Universal Electric Stage Lighting Co., 321 W. 50th St., New York, N. Y.

walls, ceiling, flooring

Walls: walnut "flexwood"/ U. S. Plywood Corp., 55 W. 44th St., New York 36, N. Y.

Ceiling: acoustical/ "Acoustone F"/ U. S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.

Rubber Floor: white 3/8" thick/ U. S. Rubber Co., 407 N. Main St., Mishawaka, Ind.

Carpeting: gray texture/ designed by V'Soske/ Lord & Adams, 4 E. 53d St., New York, N. Y.

accessories

Leather Desk Equipment: Froelich Leathercraft Co., 43 W. 16th St., New York, N. Y.

Heath Ashtrays: stoneware/ The New Store, New Canaan, Conn.

Alabaster Ashtrays: The Whitney Shop, New Canaan, Conn.

Glass Ash Urns: Loumac Supply Corp., 333 E. 103d St., New York, N. Y.

cela: interiors

client	KTAR Broadcasting Company
location	Phoenix, Arizona
architects	Lescher & Mahoney

Photos: Stuart Weiner

data

Design Theory: To provide a semi-formal contemporary design, with the accent on natural-wood finishes supplemented by color masses, planting and sound-reducing materials inherent with a broadcasting studio.

Color Plan: Paneling and flooring in warm natural-wood tones, plastered surfaces and ceilings in cool tones.

doors, partitions, windows

Exterior Doors: "Herculite"/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa., Kawneer Co., 1105 N. Front St., Niles, Mich.

Interior Doors: "Weldwood"/ solid core flush/ U. S. Plywood Corp., 55 W. 44th St., New York 36, N. Y.

Partitions: "Pyrobar" with plaster/ U. S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.; "Magnalite" glass set in birch frames/ Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo.

Entrance Windows: Kawneer Co.

Double-Hung Steel Windows: Truscon Steel Div., Republic Steel Corp., 1315 Albert St., Youngstown 1, Ohio.

furniture

Built-In: walnut with foam-rubber padding/ "Kalistron" upholstery/ Kapp & Cabinet Co., Phoenix, Ariz.

Portable Furniture: Mehagians, Phoenix, Ariz.

lighting

Fixtures: Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo.

walls, ceiling, flooring

Walls: flat-sliced walnut paneling/ plaster/ U. S. Gypsum Co.

Ceiling: in offices and corridors/ textured acoustical tile; in studios/ "Sono-faced" tile/ Owens-Corning Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio.

Floor: rubber tile/ walnut color/ Fremont Rubber Co., 274 McPherson Highway, Fremont, Ohio.

private-office hall

reception area

cela: interiors

client	General Telephone Company of the Southwest
location	San Angelo, Texas
architects	Pace Associates
interior design	Margaret Hindman

Photos: Hedrich-Blessing

customer-service booths

data

Design Theory: For simplicity, clarity, economy of air-conditioning cost and operation, an unusually open plan was adopted, with a minimum of separate individual rooms. Since this resulted in large areas, special attention was given to sound control—rubber-tile floors, acoustical-plaster ceilings, sound-absorbing wall panels. Plan permits great flexibility to meet changing requirements in the future. Unlimited glass areas used to north and south, minimum amount on east and west, protected by generous roof overhangs against Texas sun.

Color Plan: Brilliant accents introduced in upholstery fabrics, against neutral floor, wall, and window materials.

doors, partitions

Doors: ½" polished plate glass/ Pittsburgh Plate Glass Co., 632 Duquesne Way, Pittsburgh, Pa.

Floor Checks: Oscar C. Rixson Co., 9100 West Belmont Ave., Franklin Park, Ill.

Aluminum Work: Al-Bro Mfg. Co., Maplewood, Mo.

furniture and fabrics

Desks, Upholstered Pieces: Knoll Associates, 575 Madison Ave., New York 22, N. Y.

Molded Plastic Chairs: Herman Miller Furniture Co., Zeeland, Mich.

Upholstery and Drapery Fabrics: Knoll Associates; Boris Kroll Fabrics, Inc., 220 E. 51st St., New York, N. Y.; Louisville Textiles Inc., 350 Fifth Ave., New York, N. Y.

hardware

General: Schlage Lock Co., 2201 Bay Shore Boulevard, San Francisco 19, Calif.

lighting

Recessed Troffers: Modern Light and Equipment Co., Chicago, Ill.

Recessed Incandescent: Gotham Lighting Corp., 3701-31st St., Long Island City, N. Y.

Ceiling Diffusers and Smudge Rings: Connor Engineering Corp., Shelton Rock Rd., Danbury, Conn.

walls, ceiling, flooring

Face Brick: Acme Brick Co., Fort Worth, Tex.

Paneling: American black walnut/ figured flat cut/ United States Plywood Corp., 55 W. 44th St., New York 36, N. Y.

Lacquer Finish: Pratt & Lambert Inc., 79 Tonawanda St., Buffalo, N. Y.

Paint Finishes: The Martin-Senour Co., 2520 S. Quarry St., Chicago 8, Ill.

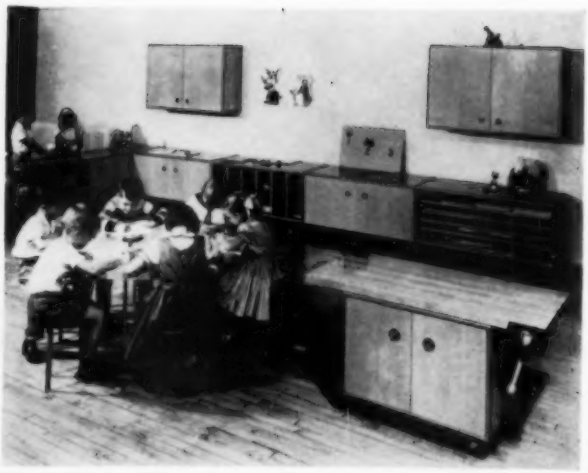
Gypsum Walls: "Gold Bond Gypsolite"/ plaster sand finish/ National Gypsum Co., 325 Delaware Ave., Buffalo 2, N. Y.

Ceiling: "Gold Bond"/ acoustical plaster/ stippled finish/ National Gypsum Co.

Floors: rubber tile/ Kentile, Inc., 58 Second Ave., Brooklyn 15, N. Y.

Carpet: Archibald Holmes & Sons, Erie Ave., & K St., Philadelphia, Pa.

school furniture

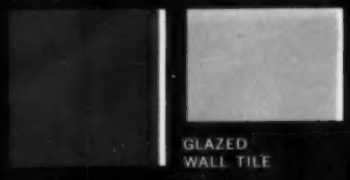


Movable Furniture: flexible cabinets/ tubular-steel frames, select maple-veneer panels, high-pressure-laminate work surfaces/ rounded corners and edges/ adjustable leg heights/ 1½" floor-bearing individual leg-leveling glides/ replaceable panels, doors, ends, backs, legs, casters, hardware/ competely modular line/ shipped KD, pre-assembled; **Sink Unit:** #1029 (left)/ option of casters or legs/ color selection in enameled doors, plastic top/ **retail:** $163 complete/ all designed by Henry P. Glass/ **Fleetwood Furniture Company, Grand Haven, Mich.**

Folding Chair: for school auditoriums, as well as civic, church, hotel meeting rooms/ seat folds independently of chair, enabling back-to-back spacing of only 30", permitting an estimated one-third increase in auditorium capacity/ spring-arch construction, upholstered seat, body-contour styling for comfort/ all-steel seat frame, Bonderized-dipped, sprayed and baked-enameled metal parts/ chairs lock together in units of two with metal clamps/ handle installed between coupled chairs permits easy folding and handling for storage/ broad choice of frame colors and upholstery fabrics/ **American Seating Company, Grand Rapids 4, Mich.**

Portable Tablet Arm: converts gymnasium to study hall or classroom/ writing surface of natural-finish hard maple, 11½" wide, 24" deep, 13/16" thick/ arm support and base plate of flat hot-rolled carbon-steel, painted mocha brown/ support electric arc-welded to base plate, will support 150 lb/ adjustable fastener ⅜" steel wing-bolt with universal tip/ students themselves may set up and remove individual Portable Tablet Arms at beginning and end of class period/ angled for comfortable writing, available for right- or left-hand use/ **retail:** $5.95 each/ packed five to a box; portable, steel, storage rack with rubber-tired casters, holds 50 arms/ **retail:** $60/ **Universal Bleacher Company, Dept. 9, Champaign, Ill.**

David H. Horn, A.I.A. & Marshall D. Mortland, A.I.A., Architects. Fresno Marble & Tile Co., Tile Contractors.



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You know what happens when the plumbing fails in a public place. It has to shut down until the sanitary facilities are in apple-pie order. It means no income for the owner until these facilities get back to work.

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By specifying cast iron, you give the businessman—or homeowner—a plumbing drainage system that will last as long as the building. For **Cast Iron Soil Pipe** is the rugged, time-tested drainage material that *can't* be crushed by shifting soil or settling foundations . . . *can't* be deteriorated by household chemicals. Equally important, cast iron's joints are as permanent as the pipe itself—they're packed tight with oakum and lifetime-sealed with molten lead.

So give your clients the permanent protection they deserve. Specify **Cast Iron Soil Pipe.** It's the *only* pipe accepted in *all* codes for use from street to roof.

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PERMANENT
CAST IRON SOIL PIPE
has *all* these advantages

- **Rugged metallic strength**
- **Zero moisture absorption**
- **Permanent tightness of joints, with flexibility**
- **The only pipe accepted in all codes for use from street to roof**

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Name _____

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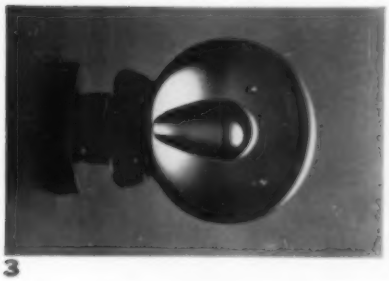
art for doors

1

2

Under direction of a newly organized styling department, Yale & Towne commissioned a number of leading artists to create a collection of door levers, escutcheons, knobs, and pulls. The collection, fusing art with hardware, was introduced this month at the Wildenstein Gallery, New York, against a bas-relief created by Jacques Lipchitz. Some examples of this application of fine arts to industry are shown here.



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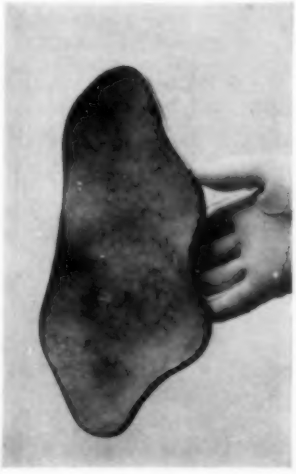

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6

1. Knob and escutcheon designed by Fernand Leger: **2.** "Sun" designed by Spaldini; **3.** Crystal-bubble knob designed by Yale-Corning; **4.** Enamel pull designed by Yale-Paolo de Poli; **5.** "Bird" lever handle designed by Mirko; **6.** Lever handle designed by Philip Johnson/ **The Yale & Towne Manufacturing Company, 11 South Broadway, White Plains, N.Y.**

For rapid construction plus eye appeal . . .

specify NEW

STRAN-STEEL CURTAIN WALL

Now your buildings can have structural soundness as well as a fresh, attractive appearance with Stran-Steel curtain walls. Exclusive *Stran-Satin* finish gives you a satin-smooth, highly decorative surface and the added protection of a non-corrosive zinc coating. And, of course, the eye appeal of these *Stran-Satin* panels is combined with the low cost and extra strength that only steel can offer. For wall or fascia construction in all types of public buildings, specify Stran-Steel curtain wall.

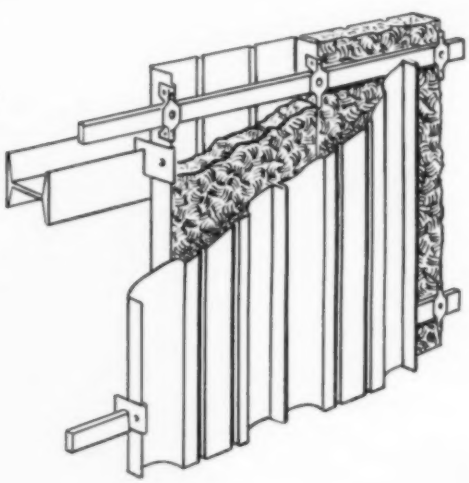
Stran-Steel curtain wall panels offer these advantages . . .

EXTERIOR SHEET

INTERIOR SHEET

COMPLETE CURTAIN WALL

- Light framework
- Fast, easy to assemble
- Less heat loss
- Complete wall insulation
- Attractive appearance



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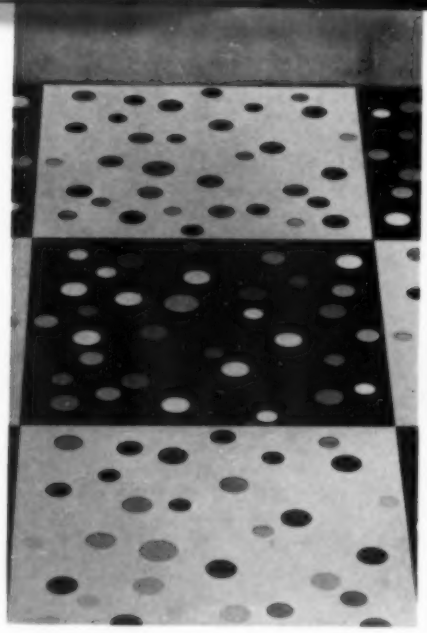
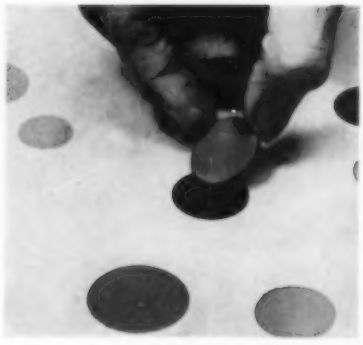
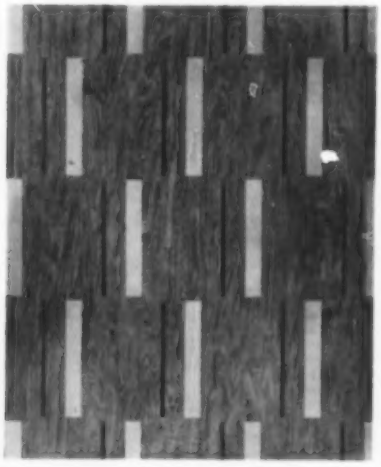
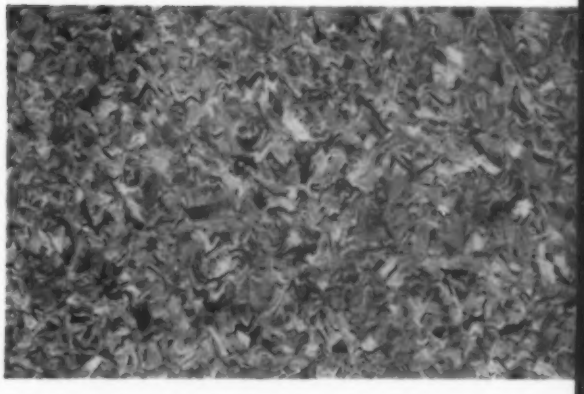


Inlaid Polka-Dots: "Polkatile"/ Bakelite vinyl-resin floor tile/ provides three sizes, four colors of coin-shaped disks for insertion in contrasting colored areas/ tiles are 12" square, 1/8" thick/ inlaid disks fit tightly into tile, held by adhesive cement/ colors are charcoal, pink, beige, gray, off-white, turquoise/ **Robbins Floor Products, Inc., Tuscumbia, Ala.**





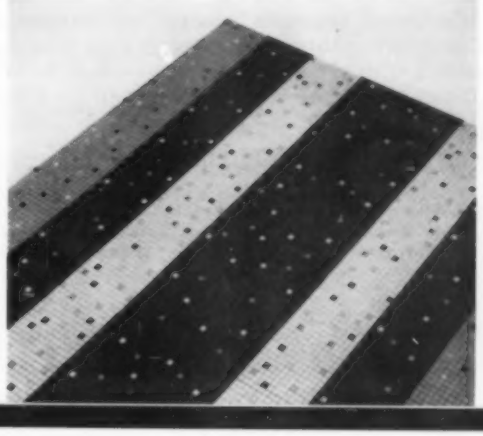
Patterned Linoleum: "Town House"/ inlaid linoleum in bold bar-and-line design, "Newport" series/ with cream bars on charcoal, brown-and-cream bars on cocoa, pink-and-white bars on charcoal/ standard gage, 2 yd/ **Armstrong Cork Company, Lancaster, Pa.**



"Textured" Linoleum: "Design X" Gold Seal inlaid linoleum/ textured effect produced by extended chips of color inlaid during manufacturing process/ in multicolors on basic grounds of tan, beige, white, gray, turquoise, charcoal/ standard gage/ 6 ft wide/ **Congoleum-Nairn, Inc., Kearny, N.J.**

Kaleidoscope Formica: "Milano"/ new nonrepetitive pattern/ printed by the kaleidoscopic process, developed to provide a realistic marble effect/ designed by Raymond Loewy Associates/ available in gray, antique, or pink/ **The Formica Company, Cincinnati 32, Ohio.**

Co-ordinated Ceramic Tiles: "Suntile Satinized Ceramics"/ nine basic motifs with relationships of color and pattern that permit them to be combined in many ways/ each pattern made up of 1"x1" unglazed tile mounted on regular 1'x2' paper sheets for installation/ individual motifs include random patterns, stripes, abstract figures, geometric designs/ executed in natural clay and porcelain, for walls or floors, indoors or out/ available in stock colors or standard Suntile colors/ designed by Max Spivak/ **The Cambridge Tile Mfg. Co., Cincinnati, Ohio.**



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KENTILE, INC. America's largest manufacturer of resilient tile flooring

KENTILE Asphalt Tile, Carnival Kentile, Corktone Kentile • KENCORK, Cork tile for Floors and Walls • KENRUBBER, Rubber Tile • KENFLEX, Vinyl Asbestos Tile, Carnival Kenflex, Corktone Kenflex • KENFLOR Vinyl Tile, also available by-the-yard • KENROYAL Vinyl Tile • SPECIAL KENTILE, Greaseproof Asphalt Tile • THEMETILE, KENSERTS, Decorative Inserts • KENCOVE, vinyl wall base • KENBASE, wall base.

Hospital Fixtures: suitable for installations in examination or treatment rooms, central service, or for general laboratory service/ made of "Duraclay," vitreous glazed earthenware that expands and contracts under extreme temperature changes without cracking or crazing/ the fixtures include surgeon's lavatory and instrument tray equipped with knee-action mixing valve and rear-mounted gooseneck spout; laboratory sink with indexed wrist-action blade handles and gooseneck spout, rearmounted; all-purpose sink with floor-mounted; double-pedal mixing valve, gooseneck spout, "Act-O-Matic" showerhead; surgeon's wash-up and instrument tray with wrist-action blade handles and gooseneck spout/ designed by Henry Dreyfuss/ **Crane Company, 836 S. Michigan Ave., Chicago 5, Ill.**

Carpet Anchor and Edge Binder: "Griptac"/ extruded-aluminum strip for use in doorways or other traffic exposed areas/ strip is punch-perforated with series of sharp barbs, has additional protective tap-down segment along one edge eliminating need for other edge finish/ slots provide for securing nails/ molding protects carpet edge, seals out dirt, keeps carpet anchored/ available in 3' and 10½' lengths, packed 126 ft to a tube, easily cut to desired lengths/ **The B & T Metals Company, 425 W. Town St., Columbus, Ohio.**

Wall Peninsula Kitchen Cabinets: may be suspended from ceiling or soffit/ full-swing double doors on either face permit access from both sides/ units are 24" wide, 13" deep, and either 30" high with two adjustable shelves, or 24" high with one adjustable shelf/ designed to make storage use of space above snack bars, room dividers, islands, free-standing ranges/ **Republic Steel Kitchens, Republic Steel Corporation, Canton, Ohio.**

Machine-Tufted Custom Carpets: luxury carpet made to individual order, specifying size, shape, color, design, machine-tufted of skein-dyed 100% virgin wool at a cost of 50% less than handmade carpet/ variety of tufted textures available for custom size, shape, and color selection/ new method of machine tufting permits made-to-order benefits at $13.95 to $19.95 per sq. yd./ **Carpet Fashions Unlimited, Inc., Division of Rugcrofters, Inc., 143 Madison Ave., New York, N.Y.**

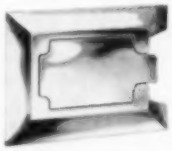
Latex Adhesives: "FC-100"/ spreads naturally in uncut form, or may be cut with water/ developed specially for "Guard," heavy-duty wall covering/ waste may be removed with brush and soapy water/ high degree of water resistance/ lifetime adhesion/ **Columbus Coated Fabrics, Columbus, Ohio.**

Cork Floor Tile: "Kencork"/ improved flexibility, smoother finish, uniform thickness, in natural cork colors ranging from light tones to deep random shades/ in ⅛" thickness, as well as 3/16", 5/16", ½" gages/ shading is baked throughout full thickness of tile, with no stain to wear out or bleach to wear off/ tiles are uniformly thick/ plastic-fortified factory finish for minimum maintenance/ **Kentile, Inc., 58 Second Ave., Brooklyn 15, N.Y.**

Baseboard Panels: "Radiantrim" cast-iron baseboard panels for forced hot water or steam/ permit combined advantages of radiant and convected heat/ designed with horizontal line above center of panel and beveled edges/ cast-iron leg available to provide added support for center sections when desired/ panels available in 24", 18", 12" sections for flexible installation in 6" increments/ quarter round or wood molding strips may be added to panel top for tailored finish/ panels may be painted with any nonmetallic heat-resisting paint/ evenly spaced fins, designed to give maximum heat transfer and smooth air flow, are tapered so that they are not visible through heat-directing apertures/ **American Radiator & Standard Sanitary Corporation, Pittsburgh 30, Pa.**

opens doors with a FLICK of a finger!

SOSS LEV-R LATCH



FEATURES:

- Flush type design
- Easy to install
- Available with or without locking mechanism for all interior swinging doors
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- Available in all Standard U.S. Finishes

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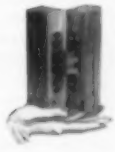

Soss Lev-R-Latch and Olive Butt are made by the manufacturers of the "Hinge that hides itself," the Soss Invisible Hinge.

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P.O. Box 38 — Harper Station
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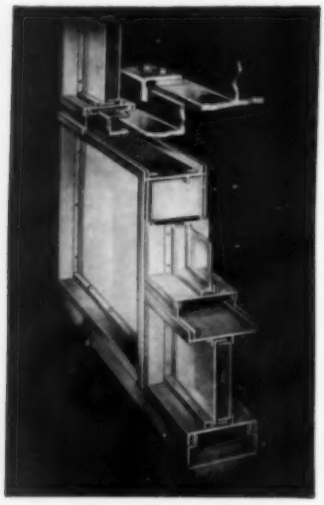
SOSS OLIVE BUTT

FEATURES:

- LOW IN COST
  Comparably priced to butt hinges
- Installation is same as any 3½" butt hinge
- When open door can be taken off without removing pins or screws
- Lifetime nylon bushing
- Choice of attractive finishes
- Adaptable to either 1⅜" or 1¾" interior or exterior doors
- Lifetime Guarantee

p/a manufacturers' literature



The William Bayley Company has issued, especially for architects, a file folder of information on their metal curtain-wall and window-wall systems. In addition to a new catalog of standard projected windows, the folder contains eight large detail sheets which show exactly how the steel or aluminum frame will accommodate any standard window and almost any type of spandrel panel (isometric drawing, left). *Included on these sheets are details of the most-used types of curtain walls and window walls: for one-story and multistory installations, a typical school-building curtain wall, and a large fixed curtain wall over entrance doors. The details themselves—some one-quarter, some one-half, and some full size—are laid out for direct tracing and are dimensioned for use on standard or modular working drawings.* L.C.

342. Bayley Windows: Drafting-Room Details, *AIA 16-E, The William Bayley Co., 1200 Warder St., Springfield 99, Ohio.*

Editor's Note: Items starred are particularly ★ *noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

139. Hydro-Flo Liquid Coolers (HB-755), 12-p. booklet presenting line of packaged liquid coolers in capacities of 7½ to 50 tons. Outlines design features of coolers which can be used as separate cooling unit, in combination with forced-hot-water heating systems, or for cooling of materials in industrial processes. Diagrams show layout of heating and cooling systems; specifications give information on equipment and installation. Bell & Gossett Co., Morton Grove, Ill.

★ **140. Carrier Modular Weathermaster Units,** AIA 30-F-2 (36N-64), 28-p. brochure illustrating redesigned window units for high-induction air-conditioning system. Isometric drawings show modular construction of units; sketches suggest installation of units in new or existing buildings. Also describes improvements in construction and performance of units; includes engineering data for design of system. Drawings; design tables; specifications. Carrier Corp., Syracuse, N. Y.

141. Moncrief Year-Round Air Conditioners, 8-p. pamphlet describing packaged, centralized air-conditioning system. Gives data on year-round system cooled by air or water, fired by gas or oil; also provides information on separate centralized cooling units and winter air conditioners. Includes data on horizontal furnaces for installation in crawl spaces. Drawings, dimensions, and ratings for each unit. The Henry Furnace Co., Medina, Ohio.

142. Worthington Packaged Cooling and Heating Equipment, 12-p. publication on centralized air-conditioning equipment for residential and commercial installations. Describes year-round conditioners for gas or oil firing, air- or water-cooled condensers; presents information on separate condensers, pumps, and cooling units. Gives drawings, dimensions, and ratings for each unit. Worthington Corp., Harrison, N. J.

construction

262. Architectural Woodwork: Plywood Paneling, AIA 19-E-6 (7), 8-p. bulletin containing information on hardwood-veneer plywood paneling. Outlines advantages of plywood for interior-wall panels; describes characteristics of veneer-core and 5-ply lumber-core plywoods. Also includes suggested specifications for both custom-built and stock plywood panels; provides typical construction details. Architectural Woodwork Inst., 332 S. Michigan Ave., Chicago 4, Ill.

★ **263. Cofar Product Manual,** AIA 4-E-4 (BCo-565), 20-p. technical manual on corrugated, high-strength, galvanized-steel sheet with transverse reinforcing wires attached. Explains advantages of material which serves as permanent formwork for concrete, acts as positive and temperature reinforcing, and may be used as finished ceiling. Design section gives step-by-step procedure, including examples and tables; details show placement of negative reinforcement where needed, attachment to structural frame, and installation of electrical underfloor duct. Drawings; specifications. Granco Steel Products Co., 6506 N. Broadway, P. O. Box 2, Baden Station, St. Louis 15, Mo.

264. Securitee Standard System, AIA 39-B-1 4-p.
265. Securitee Line System, AIA 39-B-1, 4-p.
266. Securitee Jackson System, AIA 39-B-1, 4-p.

Three folders presenting mechanical methods for erecting acoustical-tile ceilings. Shows Standard system utilizing 1½" channels in 4' grid to support concealed tile holders; illustrates concealed or exposed Line system, which uses 1½" channels in one direction only; presents Jackson system of nailing acoustical tiles or perforated-asbestos panels to metal suspension system. Installation details; dimensioned drawings of component parts. W. J. Haertel & Co., 832 W. Eastman St., Chicago 22, Ill.

267. Porcelpanels for School Construction, AIA 15-H-2 (300).
268. Porcelpanels in Office Building, AIA 15-H-2 (200).

Two file folders containing detail sheets of porcelain-enameled curtain walls. First folder encloses details showing four basic types of curtain-wall panels as used in four contemporary schools; includes photos and technical data on each installation. Second folder contains large detail sheet showing porcelain-enameled curtain wall used in Ford Central-Staff Office Building, Dearborn, Mich.; also provides photos, technical data, and specifications. Ingram-Richardson Mfg. Co., Beaver Falls, Pa.

269. Luria Buildings, AIA 14-I, 28-p. catalog describing standardized steel structures suitable for industrial, commercial, and even school use. Shows new flat-roof post-and-lintel structure; rigid-frame buildings with clear spans of 32' to 100'; and truss-type construction with supporting column for locations where large spans are not required. Also describes wide variety of sash and doors available; outlines large selection possible in siding, roofing, and insulation; illustrates optional features such as saw-tooth roofs, monitors, and roof ventilators. Drawings; specifications. Luria Engineering Co., 511 Fifth Ave., New York 17, N. Y.

270. Hollow Partitions with Channel Studs, AIA 20-B-1 (15), 4-p. technical bulletin containing information on channel studs used for support of hollow partitions. Explains advantages in flexibility and sound-insulation properties of double row of ¾" channels; presents complete specifications for design and erection of supports; gives typical details. Metal Lath Manufacturers Assn., Engineers Bldg., Cleveland 14, Ohio.

271. Mills Movable Metal Walls, AIA 35-H-6 (56), 68-p. catalog on steel interior partitions. Outlines advantages of movable walls; describes construction of three types of partitions. Presents photos, details, and specifications for 3" flush-pilaster partition, 2¾" economy wall, and commercial-type partitions; also includes data on accessories. The Mills Co., 965 Wayside Rd., Cleveland 10, Ohio.

doors and windows

341. Adlake Aluminum Windows, 36-p. catalog containing information on line of aluminum windows. Features reversible window units which pivot horizontally or vertically; shows installation of windows in curtain-wall construction. Also includes data on several types of double-hung windows, vents, and projected units. Photos, dimensioned details, and specifications for each type. The Adams & Westlake Co., Elkhart, Ind.

343. Miller Sliding-Glass Doors, AIA 16-E (117), 8-p. catalog illustrating aluminum- and steel-framed sliding-glass doors. Details, arranged to compare advantages of aluminum vs. steel, show head, jamb, and threshold sections; ¼-size details, laid out for convenient tracing, show installation in frame-stucco, concrete-block, and brick-veneer construction. Photos; specifications; dimensons. Frank B. Miller Mfg. Co., Inc., 3126 Valhalla Drive, Burbank, Calif.

344. Mississippi Glass, AIA 26-A (56-G), 20-p. booklet giving data on glass for light diffusion, decoration, protection, and heat absorption. Lists types of glass for each purpose; includes photos, physical properties, and dimension of each type. Installation photos; details; specifications. Mississippi Glass Co., 88 Angelica St., St. Louis 7, Mo.

345. Exit Devices (E-55), 20-p. catalog presenting information on rim- and mortise-type panic-exit devices. Explains operation of each device; also shows trim hardware, door strikes, and latches. Drawings; dimensions. Sargent & Greenleaf, Inc., Rochester 21, N. Y.

Stanley Hinge Selector, architects' slide rule for selecting door hinges. Charts give data on estimated frequency of door operation and other factors influencing selection of hinges; slide-rule selector gives catalog numbers of hinges for doors with kalamein, steel, iron, or wood jambs. Available only on direct application to Hardware Div., The Stanley Works, New Britain, Conn.

346. Weathersealed Steel Frames for Horizontal Sliding Windows, AIA 16-E, 4-p. publication illustrating steel-framed sliding-glass windows. Provides details of top-roller-hung sliding windows installed in curtain-wall assembly; also gives drawings and details of standard top- or bottom-roller windows. Drawings; description of special engineering features; specifications. Steelbilt, Inc., 18001 S. Figueroa, Gardena, Calif.

347. Sterling Hardware, AIA 27-A (19), 24-p. catalog on hardware for sliding doors. Covers hardware for by-passing doors, pocket doors, heavy-duty interior doors, and doors that slide along wall; also shows locks and finish hardware for each door. Includes data on prefab pocket-door frame; gives information on operators and extension hinges for casement windows. Drawings, details, description for each. Sterling Hardware Mfg. Co., 2345 W. Nelson St., Chicago 18, Ill.

electrical equipment, lighting

431. Finland House Lighting, 32-p. catalog of lighting fixtures designed by Finnish Designer, Paavo Tynell. Illustrates many pendant, multiple-lamp, and surface-mounted fixtures; shows adjustable fixtures as well as table and floor lamps. Drawings; dimensions; descriptions of materials; data on custom lighting designs. Finland House Lighting, 41 E. 50 St., New York 12, N. Y.

432. Modern Distribution Equipment for Commercial Buildings (GEA-6223), 24-p.

433. Power Distribution Planning Guide (GEA-6344), 20-p.

Two booklets especially prepared to cover latest data on high-voltage (420-480 v) electrical-distribution systems. First bulletin describes high-voltage system, explains functions of components, and gives recommendations for selecting equipment; provides equipment ratings and specifications. Second bulletin describes high-voltage system applied to typical commercial building; analyzes advantages of system and savings in cost. Includes charts, drawings, and photos of equipment. General Electric Co., Section 680, Schenectady 5, N. Y.

434. National Electric "Plug-In" Strip, AIA 31-C-71, 12-p. pamphlet presenting series of prewired, steel, multioutlet assemblies. Describes regular constant-service strip as well as new-type grounded strip for increased safety; also contains information on new switch-controlled strips. Drawings; dimensions and ratings; data on fittings. National Electric Products Corp., Gateway Center, Pittsburgh 22, Pa.

insulation (thermal, acoustical)

615. Glass-Fiber Products (WPD-11), 8-p. guide to glass-fiber products for heat control, sound absorption, electrical insulation, and plastic reinforcement. Outlines properties and applications of blanket insulations and resilient compressed boards; provides data on quartz or glass fibers in bulk or mat. Photos. L-O-F Glass Fibers Co., 1810 Madison Ave., Toledo, Ohio.

616. Sealtight Products, 8-p. booklet presenting data on materials for vapor seal and perimeter insulation. Describes semi-rigid asphalt-core membrane for use as vapor barrier; gives information on perimeter insulation formed of asphalt-impregnated cork granules. Details show installation of materials in slab-on-grade construction, crawl space, and under-slab ducts; also recommends use of insulation as resilient corewall and deck in masonry construction. Drawings; specifications. W. R. Meadows, Inc., 4 Kimball St., Elgin, Ill.

specialized equipment

★ **822. Special-Hazard Fire Protection** (73), 28-p. booklet explaining engineered fire detection and control to protect industries with special fire hazards. Describes operation of rate-of-temperature-rise, smoke, and vapor detection systems; discusses fire control with fog-type water spray, foamed-water blanket, carbon dioxide, and dry chemicals. Also

(Continued on page 162)

PROGRESSIVE ARCHITECTURE, 430 Park Avenue, New York 22, N. Y. I should like a copy of each piece of Manufacturers' Literature circled. We request students to send their inquiries directly to the manufacturers.

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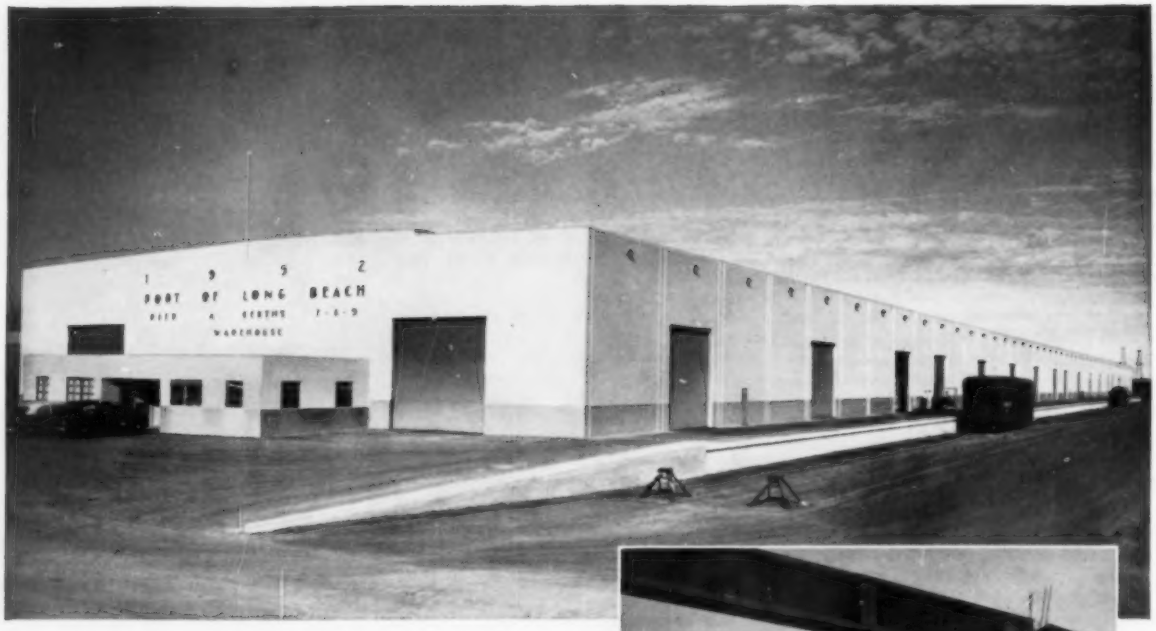


Precast and Prestressed Concrete Reduce Construction Costs

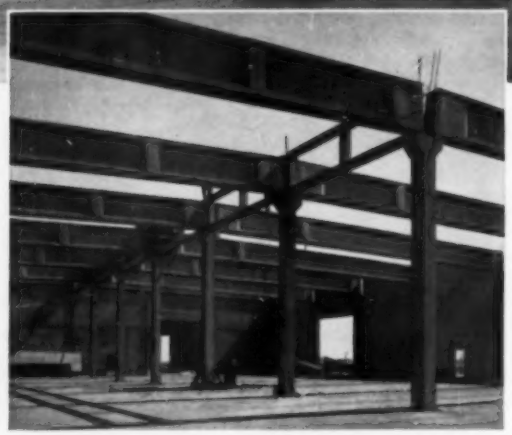
The above photo shows the "Cotton Warehouse" owned by the Port of Long Beach, Calif. It is 150 ft. wide and 1200 ft. long and has precast concrete walls, frame and roof and precast, prestressed concrete roof girders that span 75 ft. from the outside walls to a single row of interior columns down the center of the building.

This structure is an example of the savings that result from the use of precast and prestressed concrete construction. A substantial reduction in construction time resulted from (1) starting the precasting operations at the same time that the foundation work was begun, (2) re-using the formwork frequently and (3) casting the structural units horizontally at a convenient height for the workmen. This plan allowed the workers to repeat the same operations many times. Better craftsmanship and higher quality concrete were the result.

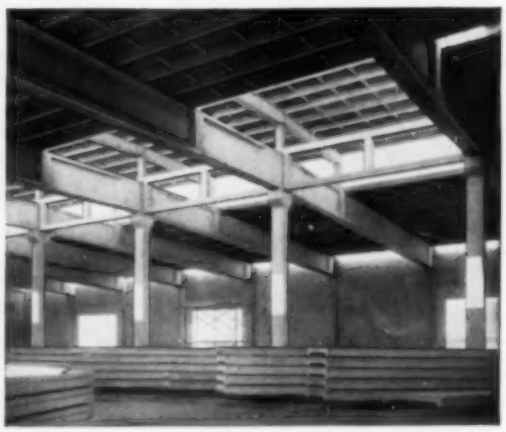
Structures using precast and prestressed concrete units have all the advantages of conventional concrete construction. They can be designed and built to conform with all applicable building codes—anywhere. And they meet all structural requirements of great strength and durability, resistance to severe weathering, long life and ***low-annual-cost*** service. In addition, they can be built to withstand violent lateral forces caused by earthquakes, hurricanes or atomic blasts.

For additional information about precast or prestressed concrete construction write for free illustrated literature. It is distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION
Dept. 5-25, 33 W. Grand Avenue, Chicago 10, Illinois
A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work



Top photo: general view of warehouse at Long Beach, Calif. Exterior longitudinal walls are precast concrete panels 30-ft. high, 23-ft. wide and 6 in. to 8 in. thick. Photo above shows 56 in. deep, I-shaped girders supported on cast-in-place wall columns and precast interior columns. Span of the precast girders is 75 ft.



Roof constructed of precast concrete channel slabs resting on prestressed girders and precast monitor frames. Warehouse designed by the office of the late J. H. Davies, consulting structural engineer. Structural engineer was James R. Bole of Long Beach, Calif. Contractor was Johnson-Western Constructors of San Pedro, Calif.

An ornamental ceiling
at minimum cost

Because Homasote is different — truly modern ceiling designs are now possible. They give the home new interest and new sales appeal. They are fast and easy to build — and at a far lower cost than with any other materials.

Homasote is different because it combines so many quality features in one material. Homasote Big Sheets produce almost any type of ceiling design with only four or five pieces. These attractive panel effects — which sell themselves for their beauty alone — have the strength, insulating value, and sound-deadening qualities always associated with Homasote. And the Homasote Handbook gives the **know-how.**

In the Handbook, the section on ceilings shows the pattern above illustrated (plus a dozen others!) — and tells in detail how to build them.

This is only one of many subjects. 46 years' experience in the making of quality materials are behind this book. Here are the right answers to 100 construction problems — of value to every architect, builder, and dealer. The Index gets your answer.

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OPERATION '56 the year to FIX HOME IMPROVEMENT

HOMASOTE COMPANY
TRENTON 3, NEW JERSEY

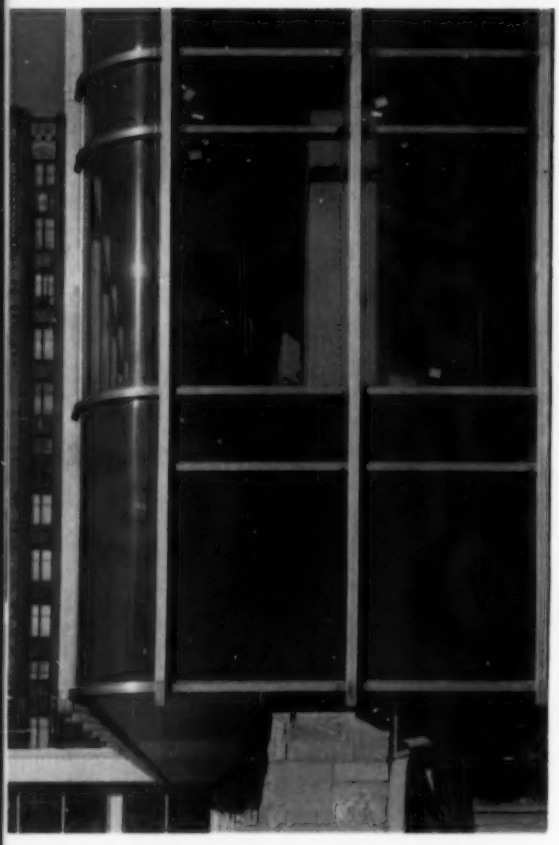
The entrance beautifully combines Stainless Steel, porcelain-enamel, glass and stone.

...they're colorful

...they're durable

...they go up fast

Curtain walls of Porcelain-enameled and Stainless Steel



The interlocked steel curtain wall panels are assembled to the building with steel anchors, bolted at top and bottom of the spandrel beam.

Eyes were bulging in Minneapolis at the speed with which the new Lutheran Brotherhood Building began to rise from the street. As the *curtain wall* was applied, it became obvious that this would be one of the outstanding office buildings in Minneapolis for a long time to come.

The finished building is like a shimmering, blue-green gem, spiced with a delicate checkerboard of Stainless Steel mullions. The USS Stainless Steel will offer service equal to the projected life of the building. And in addition to long service, the porcelain-enamel, on its base of USS Vitrenamel sheets, provides the strong, deep color that distinguishes this structure. Maintenance cost will obviously be low.

The curtain wall preassembled units are very simple. Unit frames are 4′ x 14′, made from USS type 302 Stainless Steel. The bottom of each frame contains a distinctive blue-green insulated porcelain-enameled steel panel. The top section is fixed double glass. Prototype frames were subjected to a rigid pressure chamber water test to prove their water-resistant qualities.

By using curtain wall panels fabricated from these two steels, you can exert the greatest control in design, color styling and building costs. For more information, write to United States Steel Corporation, Room 5195, 525 William Penn Place, Pittsburgh 30, Pa.

USS

More than 44,000 square feet of porcelain-enameled and Stainless Steel curtain walls on the Lutheran Brotherhood Building were erected in seven weeks.

Architects: Perkins & Will, Chicago.
General Contractors: Kraus-Anderson, Inc., Minneapolis.
Curtain wall: Fabricated by Flour City Ornamental Iron Co., Minneapolis.
Porcelain-enameled panels: Ingram-Richardson Mfg. Co., Beaver Falls, Pa.

USS STEELS FOR ARCHITECTURAL DESIGN

USS STAINLESS STEEL **USS VITRENAMEL**

UNITED STATES STEEL

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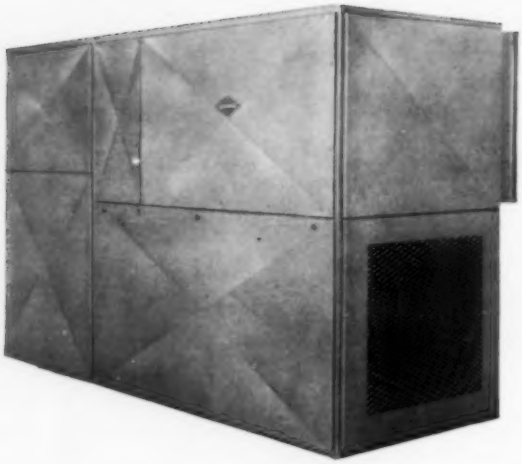
today's stores need BETTER than adequate AIR CONDITIONING



The purveying of meat, produce and groceries in today's giant supermarkets is big business. Business so important that it's poor judgment not to utilize the best air conditioning equipment available. For air conditioning has a direct effect on the quality of a store's perishables ...on a store's customers...and on employee morale.

Model AECR shown to the left represents the ultimate in air conditioning equipment. This unit, of single-cabinet construction, functions as a complete air conditioning unit, including heating if desired. It is equipped with built-in, specially designed evaporative condenser for minimum water consumption. (Where water-cooled condenser is desired, specify Model SCR.) A full range of capacities from 7½ through 60 tons makes this the ideal conditioning unit for stores, large offices and industrial installations. For a detailed brochure, write the Heating and Cooling Division, Dept. 100A.

UNION ASBESTOS & RUBBER COMPANY
Heating and Cooling Division
332 S. Michigan Ave., Chicago 4, Ill.

For commercial and industrial installations using chilled water systems UNARCO also manufactures large capacity chillers (7½ to 75 h.p.) and air handling units.

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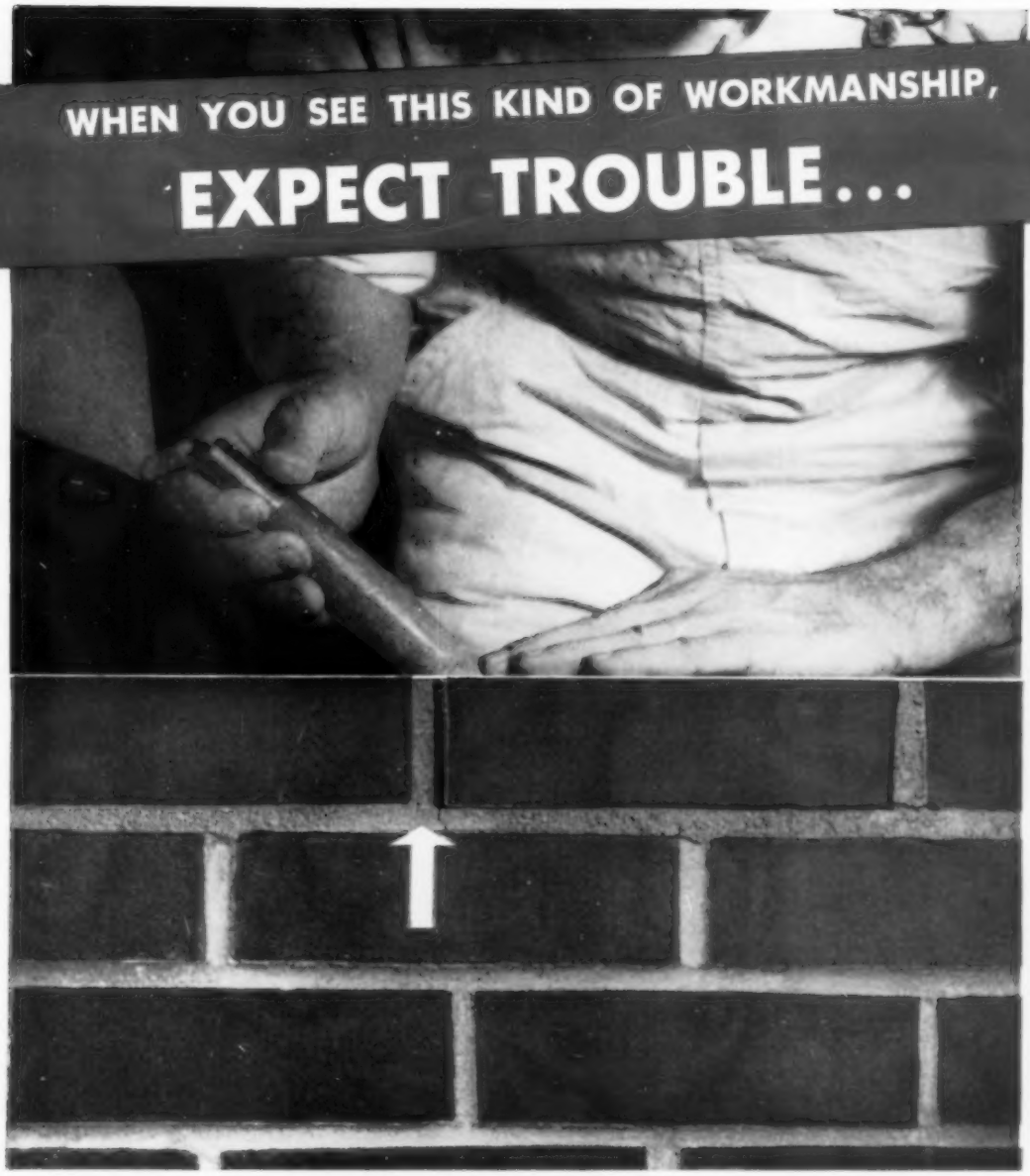

GOOD workmanship is one of the most important factors in preventing leaky brick walls.

Good workmanship includes wetting the brick, securing full head and bed joints, backplastering the face brick—*and laying the brick carefully to keep the bond. The position of the brick should never be shifted after the mortar has stiffened.*

Expect trouble when brick are shifted or tapped into place after the mortar has stiffened. Cracks will result and the wall may leak.

Brixment mortar has high water-retaining capacity. It resists the sucking action of the brick. It stays plastic and workable longer. Brixment mortar therefore makes it easy for the bricklayer to lay the brick accurately, before the mortar has stiffened.

Brixment mortar has great plasticity, high water-retaining capacity and bonding quality, great resistance to freezing and thawing, and freedom from efflorescence. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

BRIXMENT

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

p/a manufacturers' literature

(Continued from page 155)

gives data on fire control with chemical foams and steam carbon tetrachloride. Drawings; chart of recommended extinguishing mediums for various locations. Automatic Sprinkler Corp. of America, 1107 Wick Ave., Youngstown 4, Ohio.

823. Cutting Production Costs with Electronic Controls (PG-5360), 80-p. handbook presenting 46 case studies of industrial-control problems solved by use of electronic and photoelectric controls. Discusses controls for smoke detection, safety devices, traffic signals, inspection, and metering; describes installations in materials handling, textile, lumber, and food industries. Photoswitch Div., Electronics Corp. of America, 77 Broadway, Cambridge 42, Mass.

824. Ampli-Vision Master-Antenna Equipment, 8-p. publication describing simplified equipment for master-TV-antenna systems. Describes component parts; gives instructions for design of system, including tables and typical examples. Drawings; wiring diagrams. Ampli-Vision Div., The International Telemeter Corp., 2000 Stoner Ave., Los Angeles 25, Calif.

825. Kidde Fire-Extinguishing Systems, 16-p. pamphlet containing information on pressure-operated, carbon-dioxide extinguishing systems. Explains operation of systems using rate-of-rise detection equipment; describes each part of mechanical system. Drawings; diagrams. Walter Kidde & Co., Inc., Belleville 9, N. J.

826. Mosley TV Outlets and Wiring Materials, 4-p. circular giving data on built-in TV-wiring system. Describes wall- and roof-type devices for entrance of TV cable from antenna; shows wall-socket outlets for plugging in TV receiver to aerial. Also provides information on polyethylene TV conduit and rough-in parts. Drawings; specifications. Mosley Electronics, Inc., 8622 St. Charles Rock Rd., St. Louis 14, Mo.

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surfacing materials

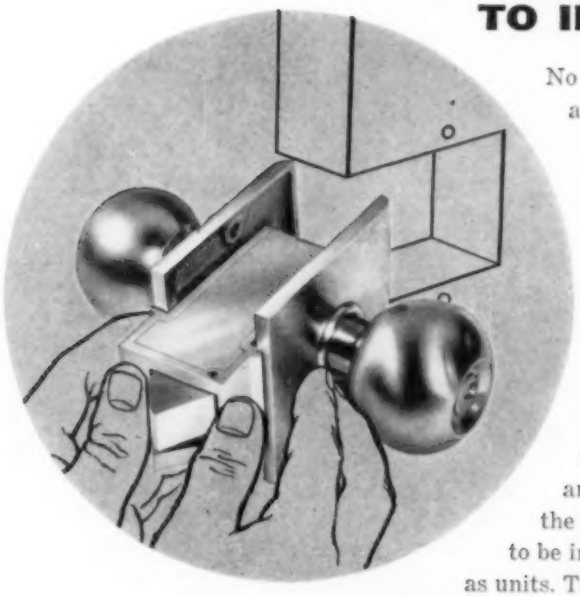
★ **921. Tile for Swimming Pools,** AIA 23-A (800), 12-p. guide for design of indoor swimming pools prepared in collaboration with Architect Harold Sleeper. Provides design standards of several U. S. athletic associations; gives dimensioned layout of competitive-type pool. Dimensioned details show construction and tile installation for competitive and noncompetitive pools; includes complete tile specifications for indoor and outdoor swimming pools. American-Olean Tile Co., 1000 Cannon Ave., Lansdale, Pa.

922. Suntile Ceramic Tile, AIA 23-A, 20-p. brochure illustrating glazed and unglazed ceramic tiles. Presents color chart and dimensioned shape drawings for standard tiles; also contains information on special unglazed tile which provides unusual resistance to wear. Gives color chart showing complementary- and analogous-color tiles to harmonize with nationally known plumbing fixtures; color photos of actual installations; specifications. The Cambridge Tile Mfg. Co., P. O. Box 71, Cincinnati 15, Ohio.

923. Loxit Complete Chalkboard System, AIA 35-B-11 (B.B. 1956), 12-p. bulletin containing information on system which includes tackboards, chalkboards, sliding boards, trophy cases, and frames. Describes chalkboards made of wood fiberboard, cement-asbestos hardboard, and porcelain-enameled steel; shows compressed cork tackboards available in wide color range. Details show installation of boards in frames; specifications. Loxit Systems, Inc., 1217 W. Washington Blvd., Chicago 7, Ill.

924. Sloane-Delaware Floor Products, AIA 23-G, architect's file folder enclosing samples, brochures, and specifications on flooring materials. Gives data on vinyl, vinyl-asbestos, linoleum, and cork materials; gives complete installation specifications for inlaid and tile floors. Sloane Delaware Floor Products, Trenton, N. J.

LOCKS THAT ARE PRACTICALLY FOOLPROOF TO INSTALL!



No special skill or tools
are required to install
Russwin Unilocs precisely.
This operation only involves sawing
two slots in the door stile,
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drilling two small holes
for through bolts, then slipping
the lock into the notch and
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It's as simple as that
mainly because *Unilocs*
are completely preassembled at
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to be installed and removed
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or escutcheons . . . not only saving considerable
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reflects "the economy of quality"
from their extremely rugged parts
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installation. Here is a
symphony in lockmaking.
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FOR SCHOOL FLOORS

THAT LAST A LIFETIME,

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For nearly 50 years, Kreolite Wood Block Floors have been used successfully in industrial plant areas where heavy traffic would ruin normal floors.

Now, Kreolite offers this famous durability in its beautiful Flexible Strip End Grain Wood Block Flooring designed specifically for school activities centers like gymnasiums, vocational shops and laboratories.

Made from 1-1/2" or 2" thick kiln-dried southern yellow pine, individual blocks of Kreolite are wire-trussed together to form compact monolithic-like end grain planks or strips. These strips are then impregnated with a special preservative to guard them against the ravages of time.

When the flooring is laid, each Kreolite strip is interlocked to adjoining strips by a patented steel wire spline—providing a smooth, resilient floor that defies hard usage! For complete details, fill out the coupon below.

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KREOLITE FLEXIBLE STRIP END GRAIN WOOD BLOCK FLOORS

Please send me a free sample and complete specifications of Kreolite Flexible Strip End Grain Wood Block Flooring.

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P

Using Penmetal light-steel structural sections, this school (above) *was erected at a cost of $13.65. Steel members for loadbearing partitions and roof joists were shop-fabricated into panels—some 32-ft long—and trucked to job site. Penn Metal Co., Inc., 205 E. 42 St., New York, N. Y.*

Improved heliodon (below) *shows direction and length of shadows cast by sun at any hour of day, day of year, and place in world—from pole to pole. Has 5-lb self-contained battery light; narrow beam casts sharp, straight shadows. Instrument may be easily leveled and oriented. Wend Heliodor, Haiku, Maui, Hawaii.*

Dreyfuss-styled wall switch has transparent acrylic-plastic cover plates; various colored-paper insets slipped behind plate allow variety of color. Quiet spring action, Micro Switch type, is sealed from dust and dirt. Operates on normal house current. Minneapolis-Honeywell Regulator Co., 2753 Fourth Ave., S., Minneapolis 8, Minn.

Curtain wall of new industrial building (above) *has sandwich-type panels with both exterior and interior faces of polyester-resin-laminated glass cloth, with built-in expanded polystyrene-resin insulation. Panels combine good structural strength and insulating qualities with low-cost installation. Haskelite Manufacturing Corp., Grand Rapids, Mich.*

Built-in combination food mixer-blender can be easily installed in any kitchen counter top (right). *Space-saving unit reduces problem of storing different appliances as one motor takes place of several. Appliances attached to power shaft recessed into stainless-steel plate. Powerful motor permits six speeds on same power shaft—lower speed ranges for mixer and juicer and speed ranges 20 times as fast for blender and knife sharpener. NuTone, Inc., Madison and Red Bank Rds., Cincinnati 27, Ohio.*

p/a products

(Continued from page 165)

air and temperature control

Amic Heating/Air-Conditioning Unit: self-contained combination heating and air-conditioning unit is specifically designed to permit rapid installation in hotel, motel, and apartment rooms without interruption to normal service. New unit, which can be installed in one or two days while room is vacant, fits under any window and connects to existing heating system; steel sleeves, exterior louvers, and interior cabinet are all tailored to design requirements of building. Each unit provides individual year-round temperature control by calibrated thermostat; heating capacity, ranging from 3000 to 18,000 Btu, is engineered to meet requirements of each room. Amic Mfg. Corp., 21-25 44 Ave., Long Island City 1, N. Y.

Cavalier Electric Baseboard: two new features have been added to electric baseboard heater. Thermostatic-control section, installed in baseboard, provides automatic temperature control in each room, while saving wiring and mounting expenses; 110-v duplex convenience outlets, which also fit into baseboard sections, can be installed in unlimited numbers. Heater, itself, features surface temperature that stays below 125F; interior passages which channel air over heating elements; and reflective baffle of aluminized steel to increase flow of warm air. Baseboard is available in 32" and 48" lengths; thermostatic-control section is 12" long (one per room); convenience-outlet sections are 4½"; all are 6" high. Electric Heating Div., Cavalier Corp., Chattanooga 2, Tenn.

construction

Bilco Roof Scuttles: entire line of metal roof scuttles has been redesigned to include several new features: stronger box-type cover with 1" glass-fiber insulation; new one-hand operation; tubular-compression-spring operators; and heavier rigid-fiberboard insulation around frame. These improvements apply to: Type "S" roof scuttle—for easy interior ladder access to flat or sloping roofs; Type "GS"—roof scuttle with plastic dome; Type "N"—allows necessary head room for steep stairs to flat roofs; Type "L" (*see photo*)—provides head room for normal run of roof-access stairs and eliminates projecting penthouses; and Type "D"—for placement or removal of large equipment through roof. The Bilco Co., New Haven 5, Conn.

Rapidex Structural System: reinforced-concrete masonry system claims advantages in thermal and acoustical insulation, fire resistance, and interior cores for conduit and forced-air heating. Precambered beams are assembled from special blocks of portland cement and lightweight expanded shale; two full-length steel reinforcing rods are embedded in high-strength portland-cement grout, which is pumped into two smaller cores near beam edges; finished beams are erected and grouted together by trained engineers. Beam, 8" deep, has .34 U factor; .55 noise-reduction coefficient; 2-hr fire rating; large center core may be used for conduit, piping, and forced-air radiant heating system. Rapidex Corp., 1100 E. 52 St., Indianapolis 5, Ind.

doors and windows

Andersen Flexivent Windows: two improvements have been added to utility-type, wood-frame projected windows. Special spring-deflection bar on underscreen

(Continued on page 170)

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Outstanding features of METALAB Equipment:

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The equipment shown here features entire units and illustrates METALAB precision engineered interchangeable type construction.

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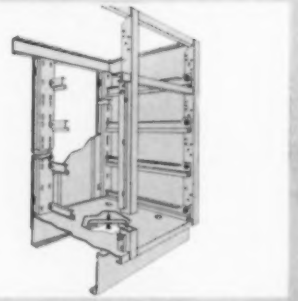
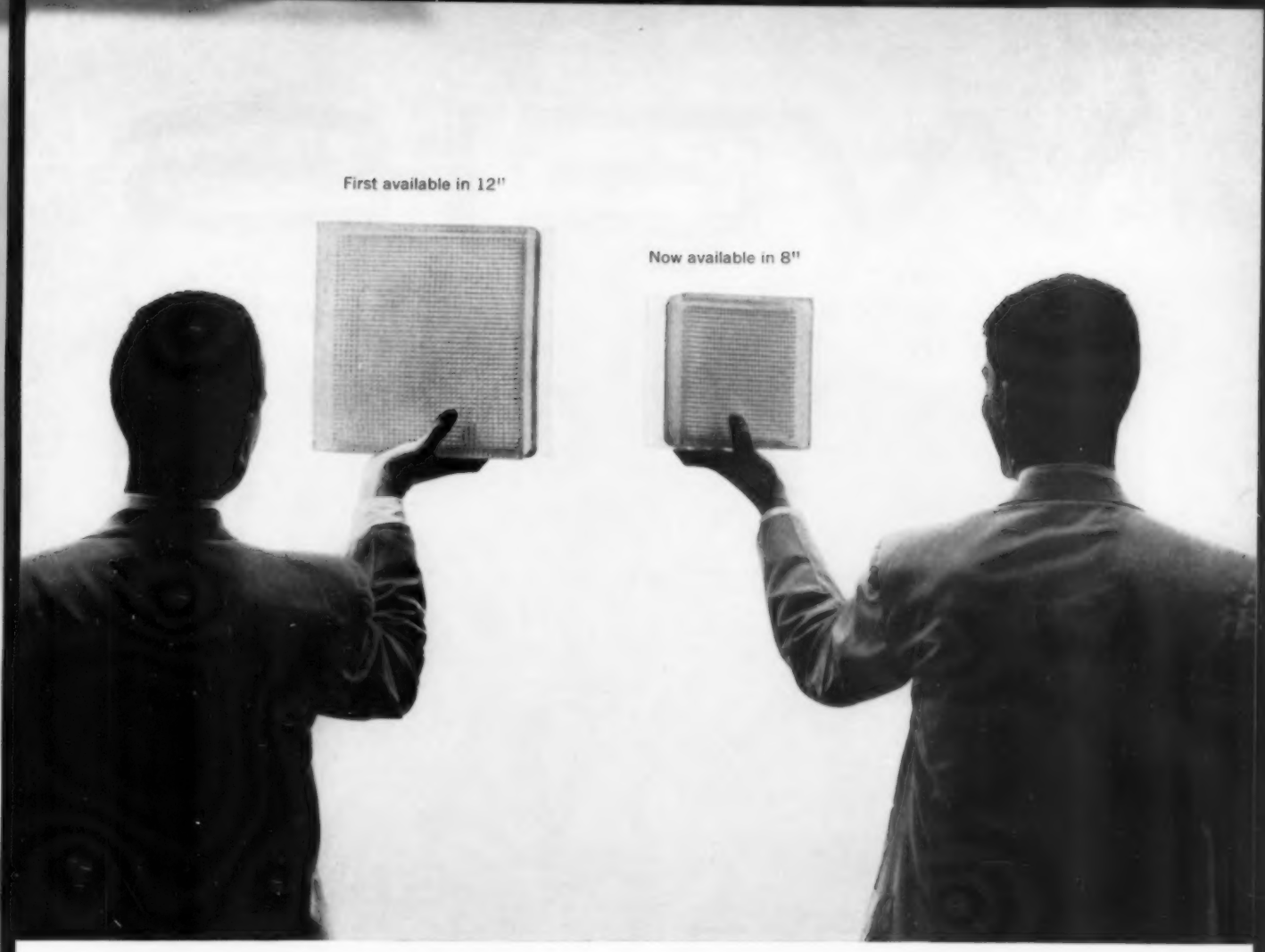


METALAB CONSTRUCTION

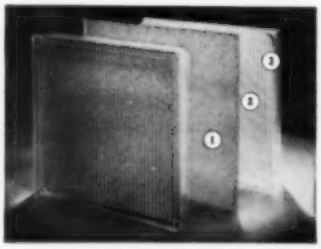
This cut-away view of a standard cabinet is an example of METALAB's precision engineered construction. You can interchange drawer and cupboard units by means of this unique design.



The block that says "*welcome*" to daylight... and "*keep out*" to heat and glare

When you hold a PC Suntrol Block up to an exposure where there is exceptional glare, you get an excellent demonstration of how this exclusive product answers difficult fenestration problems.

The picture above gives you a good idea of what you see. Notice that the *outer* faces of the Suntrol Blocks are *bright*, but on the inside faces, the raw light has been cut down to a soft, diffused glow. In addition to trapping glare, PC Suntrol Blocks reduce heat gain. To sum it up in percentages—glare reduced by 35% and heat gain by 25% compared to standard glass blocks.



Green, fibrous glass diffusing screen (1) filters light, reduces heat, divides block into two insulating cavities. Internal prisms (2) direct light upward, or diffuse it according to pattern. Exclusive Soft-Lite Edge (3) of opal glass eliminates glare through edge of block.

The glare and heat reducing benefits of PC Suntrol Blocks suggest a number of applications where light conditions are particularly severe . . . exposures facing paved school playground areas or overlooking white concrete parking lots, or locations where glare-creating snow lies on the ground for long periods.

PC Suntrol Blocks are available both in light-directing and light-diffusing patterns. Just recently an 8″ size has been introduced to supplement the 12″ unit to give the architect added design flexibility.

Write for more information. Address Pittsburgh Corning Corporation, Dept. AC-56, One Gateway Center, Pittsburgh 22, Pennsylvania. In Canada: 57 Bloor St. W., Toronto, Ontario.

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WEISWAY built-in cabinet showers are the ultimate in economical installations of this type. They eliminate the need of building a water-tight room because they are independent leakproof enclosures. Choice of 24 colors... vitreous porcelain or terrazzo receptor.

WEISWAY corner model cabinet showers save space, yet provide a roomy bath as well. They also are available as built-ins. Glass doors or curtains are optional with all Weisway cabinet showers. Choice of 24 colors ... vitreous porcelain or terrazzo receptor.

WEISWAY free-standing cabinet showers are also available in several models.

toilet compartments... for finest quality and low-cost maintenance

WEISART floor-braced style is especially popular for remodeling jobs, as well as new construction. Note clean lines for easy maintenance, and the absence of head rails. Rigid, sturdily constructed for years of trouble-free service. Choice of 24 oven-baked enamel colors. Brass hardware is chrome plated.

WEISART ceiling-hung style combines modern appearance with sanitation. No dirt-catching corners, no posts to interfere with floor maintenance. Completely rigid. Made to withstand use and abuse. Choice of 24 oven-baked enamel colors. Brass hardware is chrome plated.

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2950 No. Western Ave. Chicago 18, Illinois

(Continued from page 166)

operator is formed to impart tension to sash—which insures tight closure at window corners; in addition, operating arm is jointed into three sections to permit three open positions without projecting into room. New toxic-treated window trim, including casings, subsill, and flashing, is precut to facilitate quicker, tighter installation of standard window groupings; anodized-aluminum flashing at head, resilient-vinyl gasket at sides, and specially milled subsill provide weathertight joint between casings and wall. Andersen Corp., Bayport, Minn.

electrical equipment, lighting

Internal-Reflector Fluorescent Lamp: new-type fluorescent lamp, with inner coating covering more than half of lamp's circumference, is claimed to provide 70 percent more downward light than standard lamps. Advantages of internal reflector are: lamp remains relatively unaffected by dust deposits on top surface—resulting in lowered maintenance costs; light may be mounted without external reflectors, even where ceiling offers poor reflectance; lamp with "built-in reflector" will fit into show cases and concealed-lighting installations more easily. Lamps are initially available in 4′ and 8′ single-pin types. Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

insulation (thermal, acoustical)

Insul-Pipe: new prefab air duct is designed to solve problem of applying uniform thermal insulation and vapor barrier to metal air-conditioning ducts which pass through unconditioned spaces. Ducts are formed of glass fibers bonded with phenolic resin; inner surface is protected by phenolic coating and exterior is completely covered with aluminum-pigmented vinyl which acts as vapor barrier. Metal expansion couplings, used for elbows and to join straight runs, are sealed with special aluminum-coated adhesive tape. Pipe is fabricated in 6′ lengths with external diameter of 4½″; sections, weighing less than 2 lb, withstand internal static pressures up to 2″ water gauge. Developed jointly by: The Coleman Co., Inc., Second and St. Francis Sts., Wichita, Kans., and Gustin-Bacon Mfg. Co., 210 W. 10 St., Kansas City, Mo.

Ebbtone Acoustical Tiles: acoustical tiles, made of foamed mineral composition reinforced by high-tensile mineral fibers, are now available in striated, grained, and standard plain textures. Tiles, naturally white in color, are claimed to have light-reflectance value of 81 percent; noise-reduction coefficient is .75, sound-absorption coefficient is .77 at 500 cycles, and material is rated incombustible. Tiles, measuring 1′x1′ or 1′x2′, may be installed on suspension system or applied with adhesives approved by manufacturer. F. E. Schundler & Co., Inc., 504 Railroad St., Joliet, Ill.

specialized equipment

Direct-A-Call Interoffice Telephone: low-cost, two-to-ten-station interoffice telephone system operates from standard 110-v convenience outlet. System offers two-way loud-speaker station, voice paging, conference circuit, and bell signals in addition to normal telephone communication. Unit designed for use on or alongside desk requires only 4″x6″ space; compact power supply is plugged into outlet and color-coded wires are attached to desk units. Connecticut Telephone & Electric Corp., Meriden, Conn.

Dorphone: electronic door-answering intercom system permits two-way communication from inside house to front and rear doors. System includes weatherproof units for exterior mounting and chrome-finished master unit for interior location; two or more systems can be installed in parallel to provide controls and outlets wherever desired. Instant-heating electronic tube allows instant communication; extremely sensitive receiver will pick up sounds of children at play or night-time prowlers. Dorphone, Inc., 31 W. 27 St., New York, N. Y.

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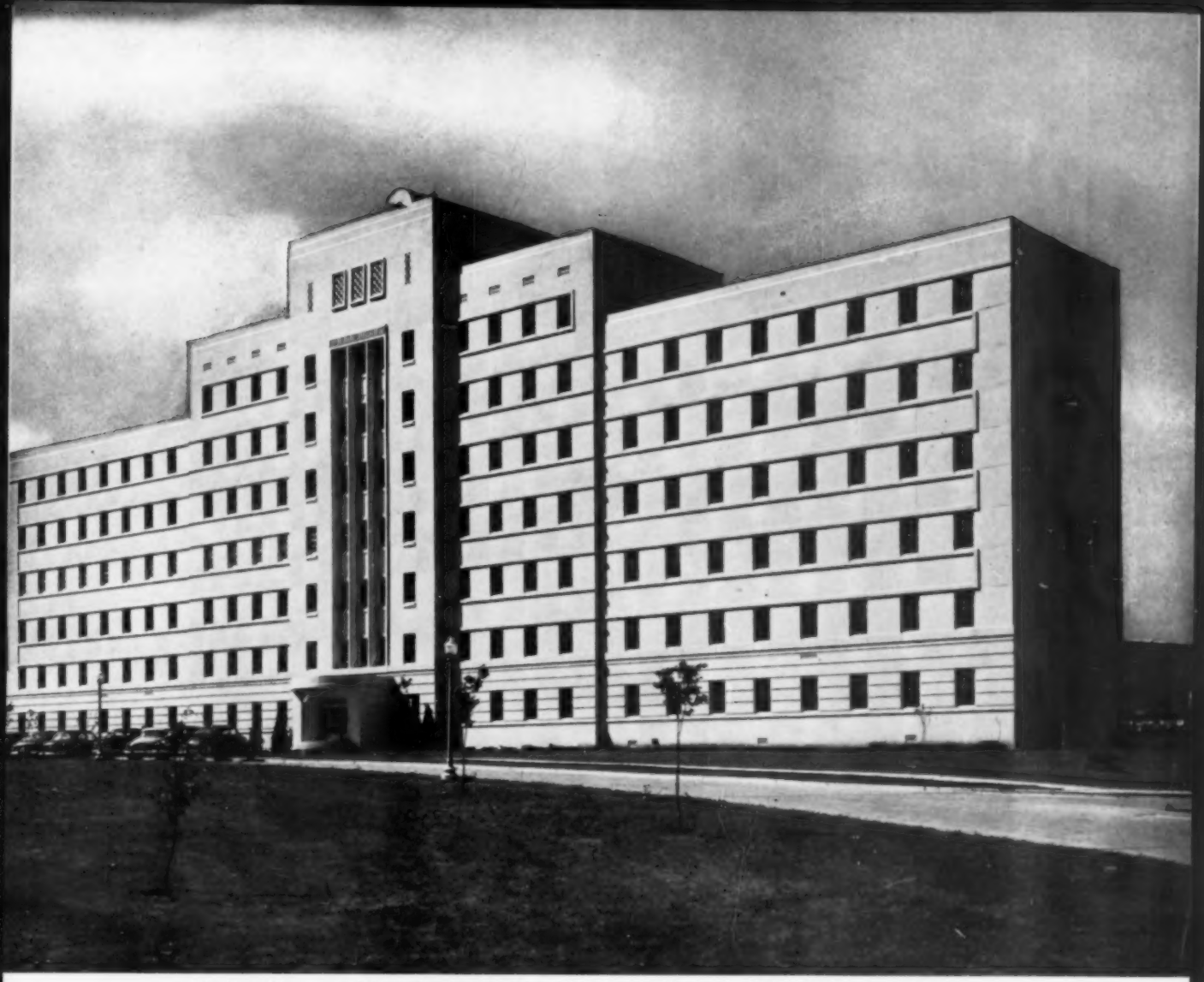

John Moses Veterans Administration Hospital, Minot, North Dakota. Contractor: McGough Bros., St. Paul, Minn.

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"Terrazzo" Bolta-Floor is produced in 15 beautiful decorator colors—and in 6 x 6, 9 x 9, 12 x 12 and 18 x 18 tile sizes (⅛" or .080" gauge).

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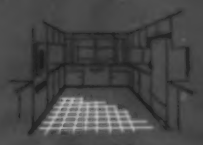
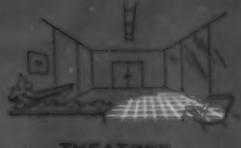

HOMES


THEATRES

SCHOOLS

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books received

Doctors' Offices & Clinics. Paul Hayden Kirk and Eugene D. Sternberg. Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y., 1955. 218 pp., illus., $12

Architectural Beauty in Japan. Kokusai Bunka Shinkokai (Society for International Cultural Relations), Tokyo, Japan, 1955. 107 pp., illus.

Landscaping for Western Living. Editors of Sunset Magazine. Lane Publishing Co., Menlo Park, Calif., 1956. 192 pp., illus., $2

Rome of the Caesars. Introduction by Pierre Grimal. Phaidon Publishers, Inc., 1956. Distributed in U.S. by Garden City Books, 575 Madison Ave., New York, N.Y. 118 pp., illus., $5.75

(Continued on page 208)

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Supplied as optional equipment, top shelves and adjustable side shelves are heavy-gauge stainless steel. One or two side shelves can be attached to either or both sides of cabinet.

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design philosophy

Sun and Shadow. *Marcel Breuer. Dodd, Mead & Company, 432 Fourth Ave., New York 16, N.Y., 1955. 206 pp., illus., 7.50*

Sun and Shadow is a simplified three-word statement of the Breuer philosophy of architecture. The term, *sol y sombra*, is what the Spaniards express so lucidly in the proverb they use for their bull fights, *sol y sombra*, meaning sun and shadow. Half the seats around the bullring face the sun and the other half are in the shadow. For the Spaniards, their life is expressed by this most spectacular of all the great contrasts of nature. The contrasts of their life of tensions and relaxations, the excitement of a dynamic life, the siesta; the ugly and the beautiful, all are stated in this simple proverb, *sol y sombra*.

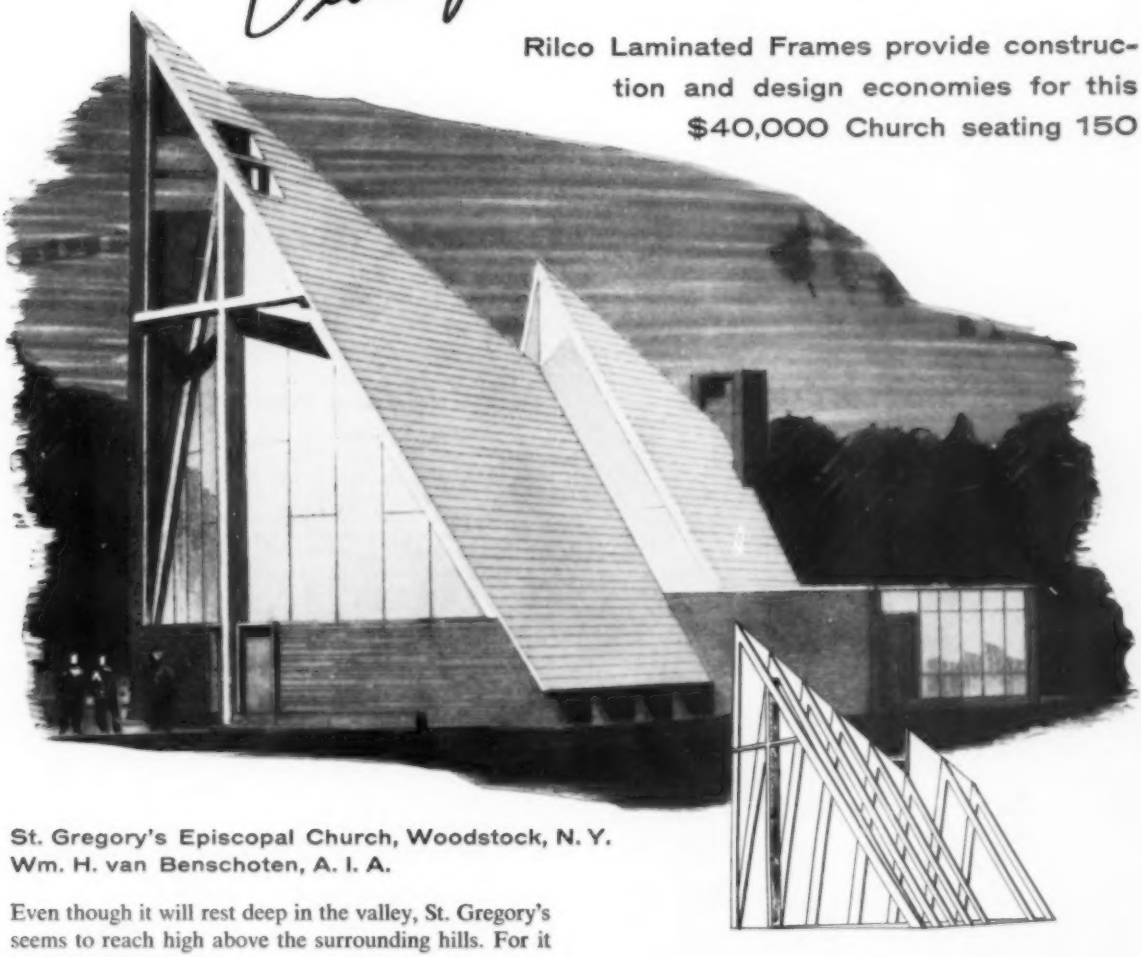
For Marcel Breuer, one of the most distinguished of an increasing number of fine modern architects and designers practicing in the world today, *Sun and Shadow*, or an architecture of contrasts, is the underlying dynamic of his design philosophy.

Breuer has rejected the organic architecture of Frank Lloyd Wright, which he believes imitates nature, for an architecture that contrasts and complements the natural forms of nature and the site. He believes that the real impact of any work of architecture as a work of art depends on the extent to which it unifies contrasting or opposite points of view. By his architecture he states, unification contrasting elements between nature and man-made or architectonic forms must be accomplished by contrasts, else compromise is the inevitable result. He thinks the easy method of meeting contrasting problems is compromise, that the inevitable solution for combining black and white is to achieve gray. That is the easy way. Breuer's architecture as opposed to the organic architecture of Wright is classic in its con-

(Continued on page 178)

Beauty on a budget

Rilco Laminated Frames provide construction and design economies for this $40,000 Church seating 150



St. Gregory's Episcopal Church, Woodstock, N. Y.
Wm. H. van Benschoten, A. I. A.

Even though it will rest deep in the valley, St. Gregory's seems to reach high above the surrounding hills. For it was planned that way.

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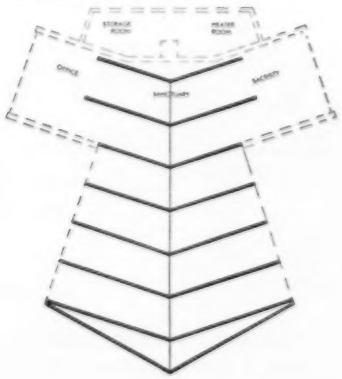

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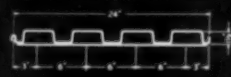
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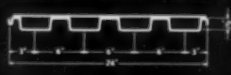
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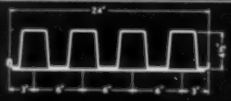
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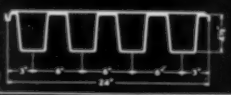
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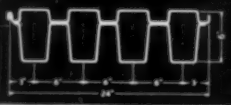
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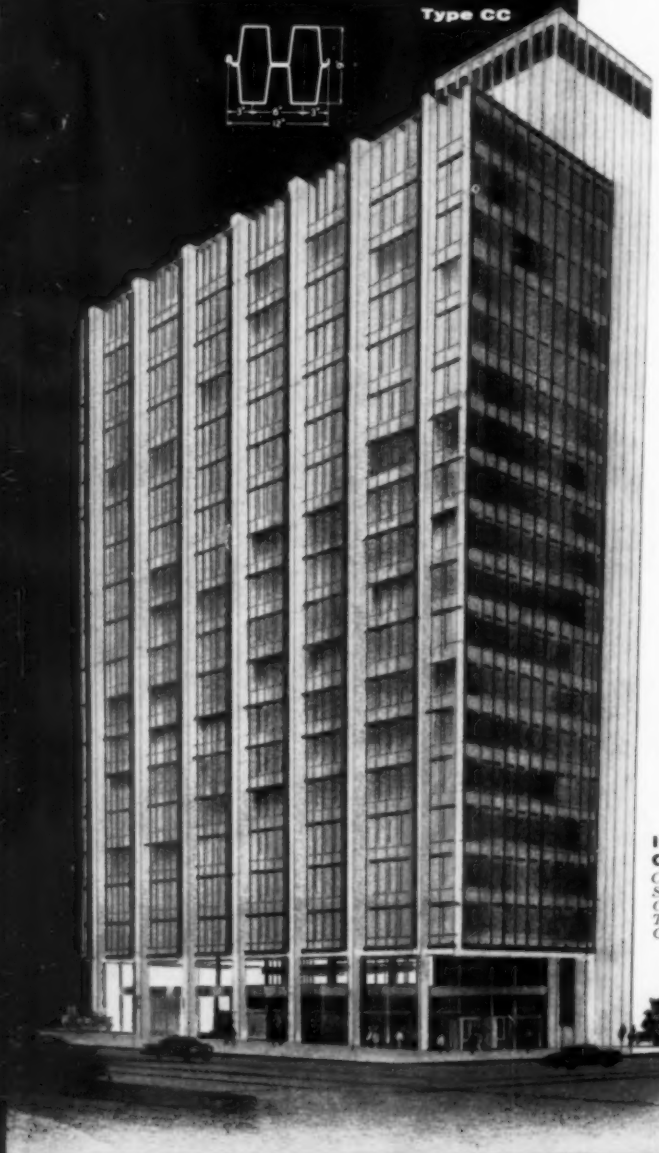

Inland Steel Company Building
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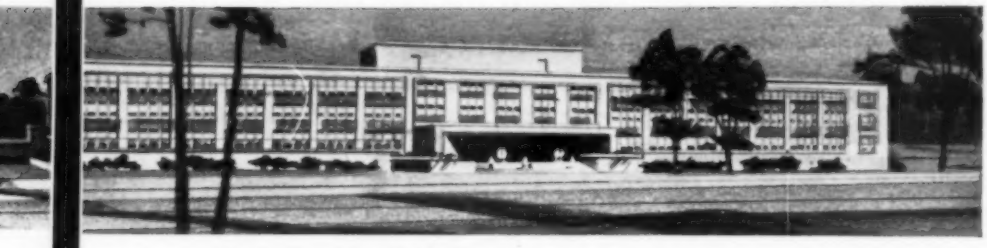
Federal Reserve Bank Building, Minneapolis, Minn. Architects: Larson & McLaren, Minneapolis, Minn. General Contractor: Naugle-Leck, Inc., Minneapolis, Minn. Consulting Engineer: Schuett-Meier Co., Minneapolis, Minn.



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New York Department of Civil Service Building, Albany, N. Y. Architects: Cornelius J. White, State Architect, Albany, N. Y. Kenneth G. Reynolds & Associates, Albany, N. Y. General Contractor: Brown-Turner, N. Y. C. Engineers: Praeger & Kavanaugh, N. Y. C.

. . . in the **Transportation** field
Pennsylvania Transportation Center, Philadelphia, Pa. Architect: Vincent Kling, Philadelphia, Pa. General Contractor: McCloskey & Co., Philadelphia, Pa. Engineer: McCormick & Taylor Associates, Philadelphia, Pa.

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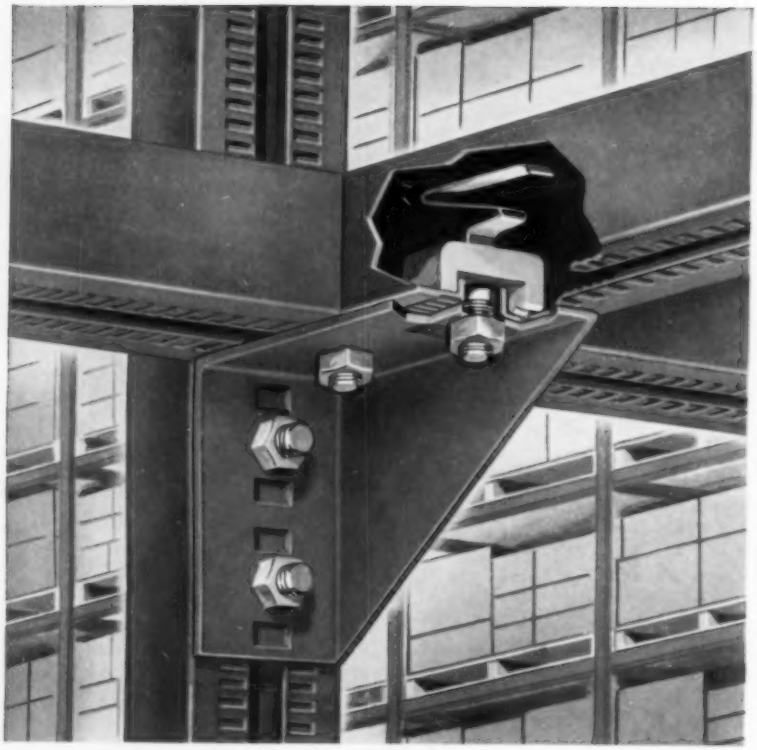
Glen Ridge Directory Building, (New Jersey Bell Telephone Co.) Glen Ridge, N. J. Architects: Voohees, Walker, Smith & Smith, N. Y. C. General Contractor: James Mitchell, Inc., Jersey City, N. J.

. . . in the **Finance** field
Commercial Credit Building, Baltimore, Md. Architects: Harrison & Abramovitz, New York City. General Contractor, Consolidated Engineering Co., Baltimore, Md. Engineer: Edwards & Hjorth, N.Y.C.



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reviews

(Continued from page 174)

cept; and because of the influence of the machine on his forms, he can be justly typed as an exponent of the international style. From this position, he has made lasting contributions to the modern movement.

Three major elements of the book are well organized and edited by Peter Blake, architectural editor of *House And Home* magazine and by the well-known art director, Alexey Brodovitch, who designed the book. The book is primarily Breuer's own statement about his architecture and its philosophy. He states his belief that architecture and philosophy have much in common since both deal with the art of living. There is a brief historical review of the architect's work before 1937, the year he came to America from Europe and a series of essays by Breuer on the dominant principles that guide him. The essays began with taped recordings of a series of conversations between Breuer and Peter Blake. The informal and spontaneous character of the conversations have been consciously preserved. Breuer's statements with critical analysis and comment by Peter Blake and the large assortment of photographs on nearly all of Breuer's major works are the three well-unified elements of the book. Since Blake's comments appear throughout the book, sometimes between the architect's essays, confusion is eliminated by printing Breuer's works in bold type and the editor's explanatory remarks in light type.

Breuer states in his introduction that the book "is an attempt to divert attention from the generously used slogans, shortcuts, and set dogmas of an established modern architecture and to emphasize rather the philosophical implications underneath." The title of the book is, however, the opening slogan, and the personal style of the architect is based on his own personal dogmatism. Breuer does, however, offer no formula or short-

(Continued on page 188)

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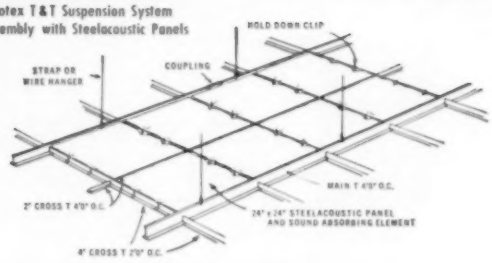
Corridor of Schuylerville School, Schuylerville, N. Y. showing Acousti-Celotex Steelacoustic® Panels on a T & T® suspension system. *Architect:* Waasdurp & Northrup, Rochester, N. Y. *General Contractor:* Christensen & Neilsen. *Acousti-Celotex Contractor:* Collum Acoustical Co., Inc.

Celotex T & T Suspension System Assembly with Steelacoustic Panels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Economy—Low-cost installation through efficient assembly of 24″ x 24″ Steelacoustic units, Celotex T&T exposed grid suspension system.

Attractive—Steel panels provide an attractive design for wide variety of commercial, industrial, and institutional areas. Available in white and stria-colored green, brown, and black.

Removable—Easy access to ducts, wiring, and other utilities above ceiling through easy removability of Steelacoustic panels.

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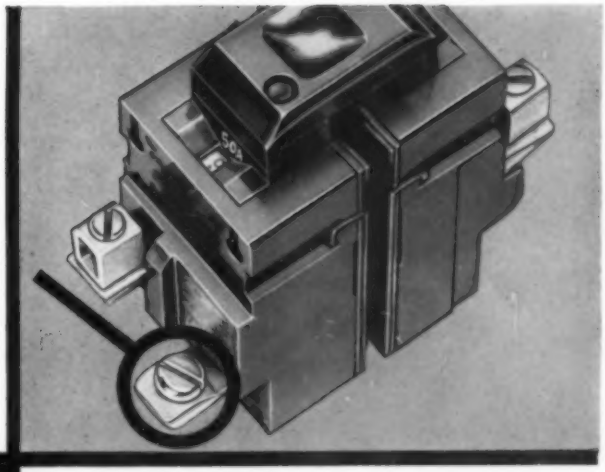
FOR COMPLETE DETAILS on Acousti-Celotex Steelacoustic Panels and other acoustical products, write to The Celotex Corporation, Dept. C-56, 120 S. LaSalle St., Chicago 3, Illinois.

Products for Every Sound Conditioning Problem—The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Illinois • **In Canada:** Dominion Sound Equipments, Ltd., Montreal, Quebec

THE BIG NEWS in circuit breakers is this BullDog Two-Pole, Common Trip Duo-Guard Pushmatic. Simplifies wiring. Makes installation easier and faster. The new terminal screw retainer (circled) ends fumbling and wasted time . . . you get a *bolted* connection fast.



New Two-Pole "Common Trip" Duo-Guard Pushmatics

The heavy-duty, safe, positive switching and protective device

There's real convenience, real safety in two-pole breakers now. BullDog's new Duo-Guard Pushmatic® Common Trip breakers for Electri-Centers® are now available for two-pole, 220V circuits (15 to 50 amperes)—for residential, commercial, institutional and industrial applications.

Operation of this new two-pole Common Trip Pushmatic is simple and safe. (1) A push of the button gives simultaneous "ON" or "OFF" operation. (2) In the event of an overload or short circuit, both poles are automatically de-energized.

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Ask for a demonstration of the new Common Trip now. See your BullDog field engineer or qualified distributor or write BullDog Electric Products Co., Detroit 32, Michigan.

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Export Division: 13 East 40th Street, New York 16, N. Y. • *In Canada:* BullDog Electric Products Co. (Canada) Ltd., 80 Clayson Road, Toronto 15, Ont.

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IMPORTANT DATA ON EXPANSION CONTROL

Heating System Expansion Control Guide

Flexon Expansion Joint Design Guide

For further information, write for these descriptive bulletins.

The Flexon Expansion Compensators installed in the floor heating system piping of American Car and Foundry Division's new lightweight train of the future, the TALGO, are called upon for double duty. In addition to their normal function of expansion control, they contribute to ACF's design objectives of isolation of objectionable noise and motion when the TALGO is on the move.

Their exceptional performance under such operating conditions is a plus recommendation of their suitability for all types of buildings. Especially designed and engineered to replace outmoded, troublesome methods of pipeline expansion control, these units eliminate the noise of pipe creeping and assure long leakproof service. Easily installed, they are space savers that require no access panels because they require no maintenance—for the life of the piping system.

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Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

reviews

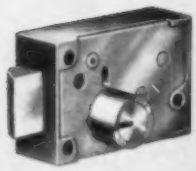
(Continued from page 178)

cuts. Form is a dominant characteristic of the Breuer architecture, and he sometimes makes major compromises with function in order to achieve greater strength and significance in form. Two important statements in the introduction can be digested and accepted by all students of modern architecture: "while architecture has very much to do with solutions proved by experience, and while sound construction and economy turn us toward proved solutions, those solutions—we may call them the traditions of building—should constanty be checked against experiments with new developments. We cannot separate the two: responsibility based on experience and the adventures of progress." An architecture based on such an hypothesis has its roots in the past with its traditions growing and dynamic.

In his comment, "architecture is not the materialization of a mood. Its objective is general usefulness, including its visual impact. It should not be a self-portrait of the architect or the client, though containing personal elements of both. It should serve generations and while man comes and goes, building and idea endure," he states the center line, the organic certitude for a fruitful client-architect relationship. Breuer knows, as all good architects know, that a good building is the result of a sympathetic co-operation between an intelligent and understanding client and a talented architect.

The book uses an unusual format with four-column facings laid horizontally across each page, although the space of the left-hand column is usually reserved for titles and often a one-column photograph. The designer used this page-format because the major portion of the book is a series of photographs. Since most architectural photographs are horizontal, it seemed reasonable to experiment with the horizontal format. The idea was, at the beginning of the reading, somewhat perplexing,

(Continued on page 187)



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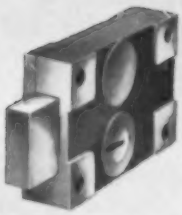
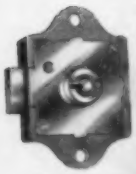
SASH AND DOOR CONTROLS

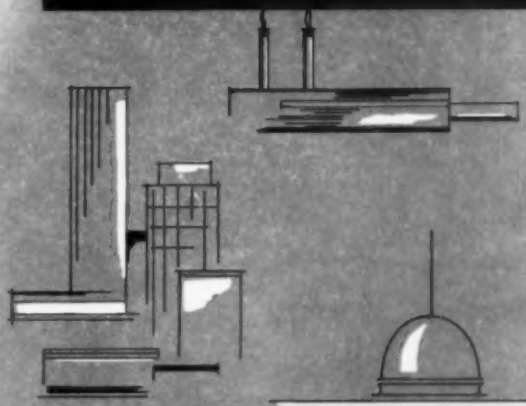


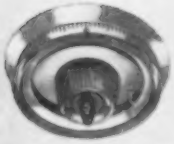
PRISON LOCKS

INSTITUTIONAL PRODUCTS



LOCKER LOCKS





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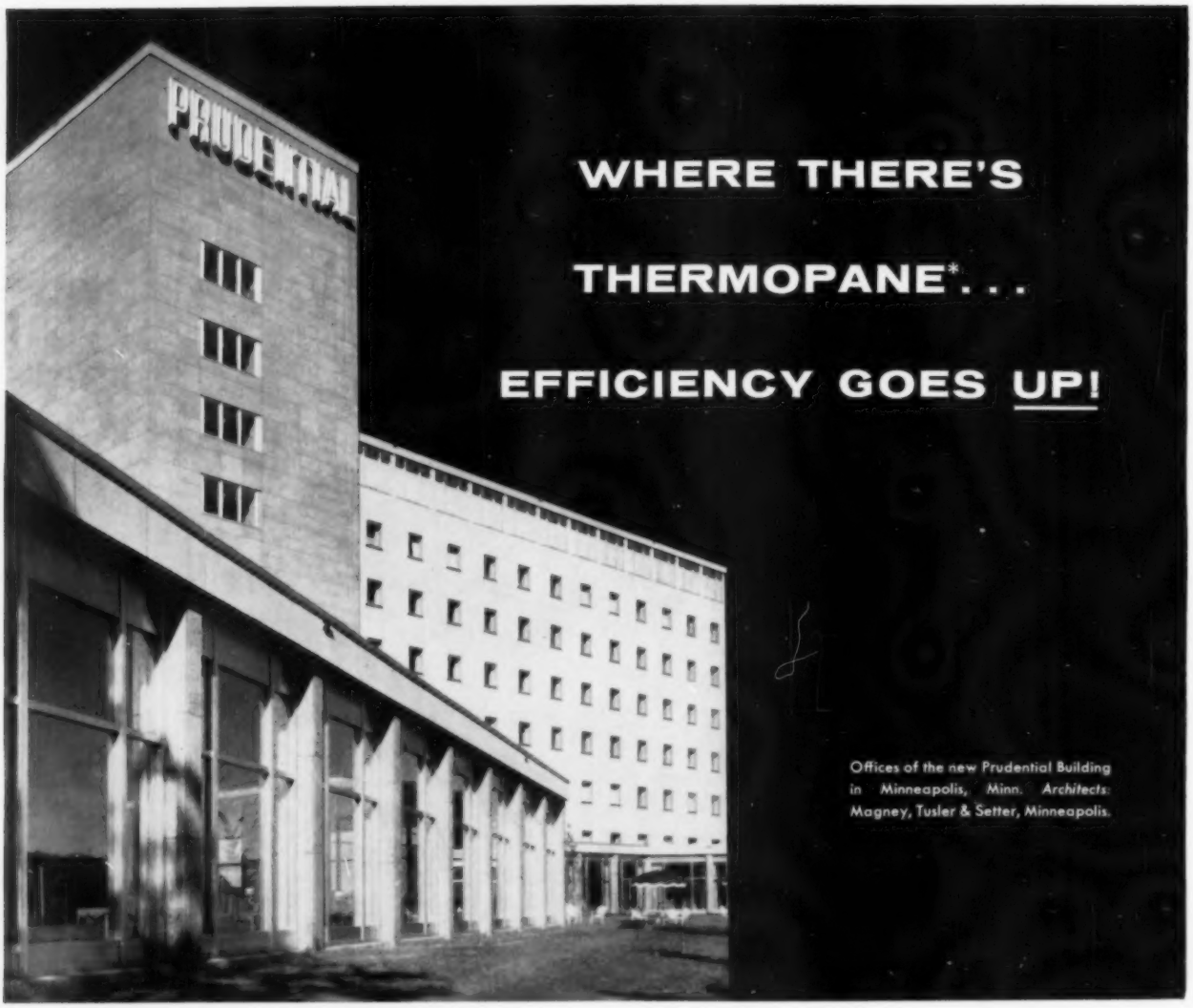
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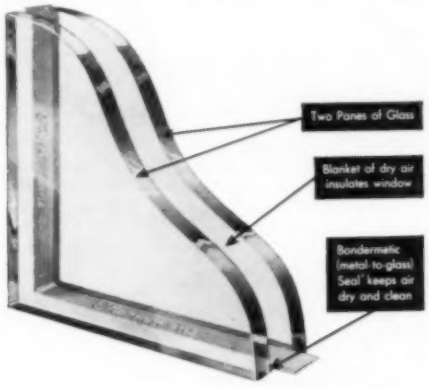

Mile High Center Building in Denver, Colo. *Architects:* Webb & Knapp, New York, N.Y.

Offices of The Jewel Tea Co., Inc., Melrose Park, Ill. *Architects:* A. Epstein & Son, Chicago.

*Thermopane** FACTS

Much technical information is available to help the architect and engineer design for the most effective and most economical use of *Thermopane* insulating glass. It is all in our *Thermopane* Manual which will be sent on request. (See coupon below.)

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More than 90 standard sizes are made to permit economy in use with most popular types of sash. The *Thermopane* Manual provides a list of sash types and standard sizes for them.

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Warm Side Surface Temperatures
Condensation Points
Sound Insulation
Light and Solar Radiation Transmittance
Reduction of Cooling Load
Strength of *Thermopane*
Wind Load
Weight Per Sq. Ft.
Glazing Instructions
Framing Details
Suggested Specifications

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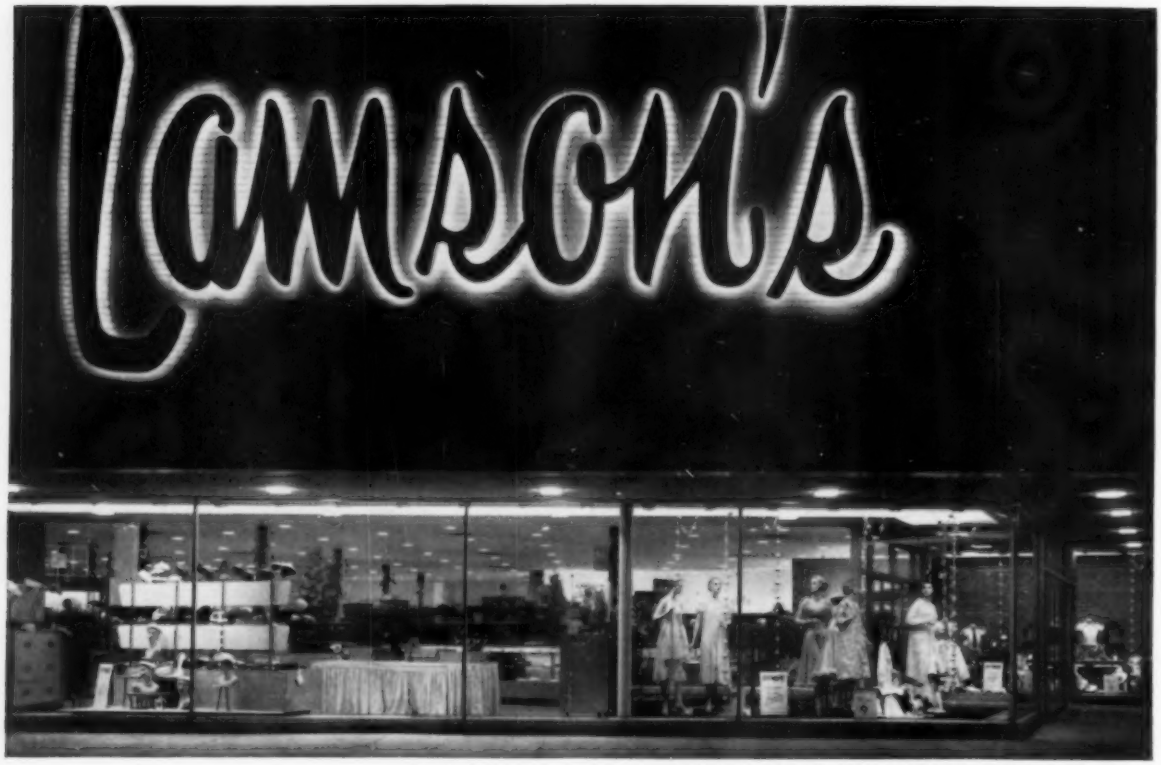

Lamson's newest suburban store in Toledo, Ohio. Architects: Weinberg & Teare, Cleveland.

not a wiggle in a window... looking in, looking out, looking at

Ever walk by a store (or a house) and see reflections wiggle in the windows? When glass is not distortion-free, it spoils the looks of the building and the things you see through the windows.

But see how well the glass speaks for the store shown above (and the merchandise inside). It's L·O·F *Parallel-O-Plate** Glass — the most distortion-free (the only *twin-ground*) plate glass made in America. Yet in most localities, it costs no more than ordinary plate glass.

So it *pays* to have *Parallel-O-Plate* Glass in your windows, storefronts, display cases and mirrors. It's better, any way you look at it — looking in, looking out or looking at.

Read the column at the right for important facts on *Parallel-O-Plate.*

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FACTS

COMPARE the reflections of the upside-down signs in the mirror of conventional plate glass (top) and the mirror of *Parallel-O-Plate** (bottom).

Parallel-O-Plate Glass is more distortion-free than ordinary plate glass because its surfaces are more parallel.

This great degree of parallelism is the result of a special kind of grinding called *twin-grinding*.

The ordinary method is to cut off a section of glass, grind one side, turn it over and grind the other side.

In the *twin-grinding* process, the glass moves from the furnace through the new annealing lehr and into the *twin-grinding* process where both sides are ground simultaneously in a continuous ribbon 975 feet long. It's precision made all the way.

For further information, call your Libbey·Owens·Ford Distributor or Dealer (listed under "Glass" in the yellow pages). Or write Dept. 8356, Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.*®

LIBBEY
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reviews

(Continued from page 182)

but the hand seemed to manipulate the turning of the pages, in general, better with this system than with the conventional vertical page. The horizontal page lends itself to a more adroit handling by the reader who likes to do his reading lying down!

The essay on the "Art of Space" is particularly revealing of Breuer's fundamental beliefs. "Structures in Space" gives conclusive evidence that he understands the true relationship between form and structure in architecture, and the essay on "Colors, Textures, Materials" emphasizes his fine esthetic judgment and good taste.

The book's photographs show some of his smaller one-family houses, schools; college, religious, and commercial buildings and, finally, the new UNESCO headquarters buildings in Paris, of which he is the American architect collaborating with the young French architect, Bernard Zehrfuss, and the brilliant Italian structural engineer, Pier Luigi Nervi. This important book should make clear the reasons for Breuer's worldwide reputation as an architect and an artist of rare distinction. HENRY L. KAMPHOEFNER

reference gem

The Modern Building Encyclopaedia. *Edited by N. W. Kay. Philosophical Library, Inc., 15 E. 40 St., New York 16, N.Y., 1955. 768 pp., illus., $15*

A vast amount of information and data—nearly 4000 entries—is concentrated in this fact-packed volume. More than 30 specialists contributed to this comprehensive work and its illustrative drawings have been meticulously executed. A number of terms familiar to the U. S. architect, however, are missing. For example, don't British architects speak of *heat-absorbing glass?* Or, do they not specify *perlite? Or vermiculite?* (Both are generic words.) An his-

(Continued on page 190)

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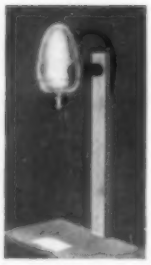
Designing for maximum return from an investment in high-cost space is an ever-recurrent architectural problem. The plan of the Rockefeller Center office of The New York Savings Bank represents an outstanding solution, packing a quarter-billion dollar deposit capacity into 4000 square feet.

GPL *ii-TV*® as a planning tool

No. 1—*More banking in less space*



As the photograph shows, the open, attractive, uncluttered plan of the new uptown office of The New York Savings Bank makes available most of the space for customer service. No files or records clutter the banking floor. This plan is possible because with GPL *ii-TV*—the GPL *industrial-institutional TV* system—records need not be kept physically accessible. GPL *ii-TV* connects each teller directly to a central record file located in low-cost space at the main bank, two and a half miles downtown. When a balance or signature is needed, a call via intercom brings it instantly over the closed *ii-TV* circuit to a small GPL bank monitor set inconspicuously into the counter at the teller's station. The whole operation takes only a few seconds—actually only half the time required when tellers must refer directly to files on the same floor.

Banks are, of course, only one of many types of structures in which the ability of the *ii-TV* System to transmit visual information instantly and accurately over any distance will improve the building's functioning. Wherever it is used, whatever job it does—in commercial, in industrial or in institutional buildings—the *ii-TV* System gives the architect a revolutionary planning tool.

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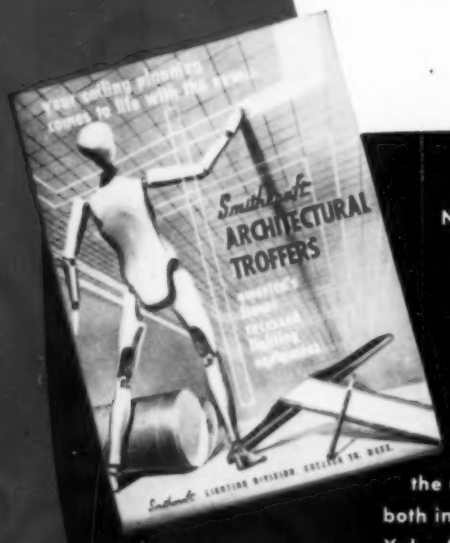

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However, equally important is the other half of the story . . . the exclusive "hidden" features that provide the unlimited versatility, high efficiency and cost-chopping economy in both installation and maintenance. For example, Smithcraft's patented Yoke-Aligner* so effectively simplifies installation that only a screwdriver is needed from start to finish! Developments like these are just as important to the architect and engineer as are Smithcraft's outstanding lighting performance and appearance.

*Patent #2,597,875 other patents pending

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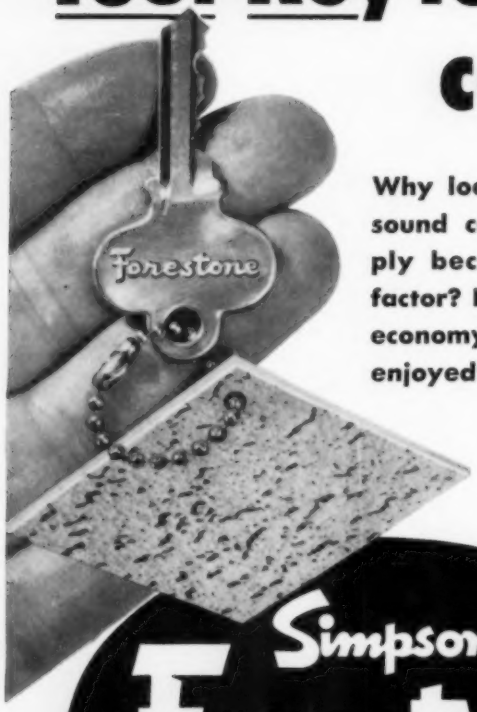

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. . . in the 9/16" thickness than popular thicknesses of perforated fiber tile. Forestone is also available in ¾" thickness with either beveled or square edges.

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reviews

(Continued from page 187)

torian would be pleased to find pendentive and groin but what happened to *griffe?* Yet, these omissions are but quibbles contrasted to the tremendous coverage of this encyclopedia.

B.H.H.

important handmaiden

Governor Tryon and His Palace. *Alonzo Thomas Dill. University of North Carolina Press, Chapel Hill, N. C., 1955. 304 pp., illus., $5*

The Flood and Noah's Ark. *André Parrot. Philosophical Library, Inc., 15 E. 40 St., New York 16, N. Y., 1955. 76 pp., illus., $2.75*

The Tower of Babel. *André Parrot. Philosophical Library, Inc., 15 E. 40 St., New York 16, N. Y., 1955. 76 pp., illus., $2.75*

Archeology is an important handmaiden at the apotheosis of architecture, whether Mesopotamian or American Colonial, these volumes testify.

As architects (like busmen) take holidays, doubtless many will visit New Bern, North Carolina, to inspect Perry, Shaw & Hepburn's restoration of "Tryon's Palace." If they, or their families, wish to know of New Bern from 1760 to 1800 or more of the original building, A. T. Dill has written a most informative book, full of anecdote, incident, and apt quotation, based on conscientious research. He is well prepared to present the historical background for his restoration, since in 1940 for the North Carolina Society for the Preservation of Antiquities, he wrote the first report on the possibility of restoring the colonial capitol and has been historical research consultant for the Tryon Palace Restoration Commission.

William Tryon was sent out to North Carolina in 1764 as Lieutenant Governor with the understanding that he would succeed the incumbent as Governor, which he did the fol-

(Continued on page 192)

NOTRE DAME HIGH SCHOOL, Detroit, Michigan
WALTER J. ROZYCKI, *Architect*
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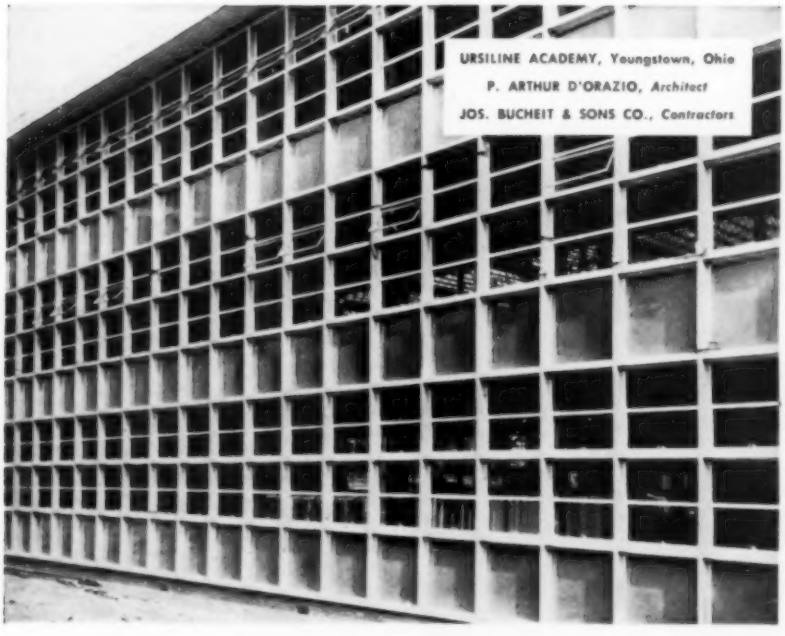
THE DYNAMIC LOOK...



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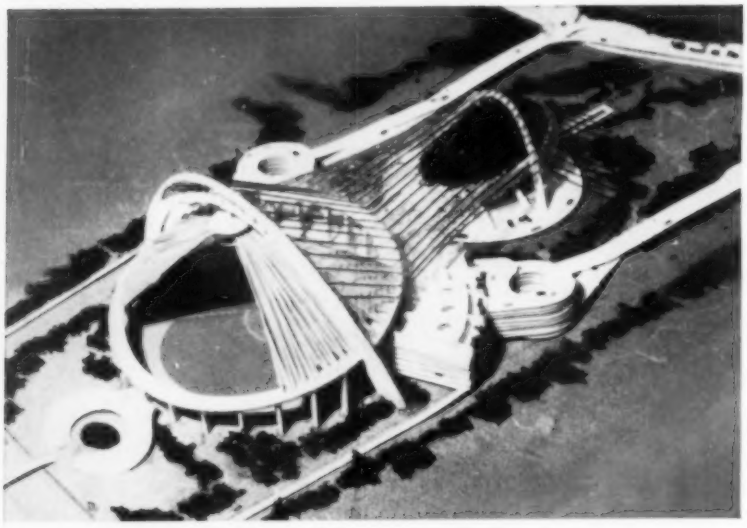
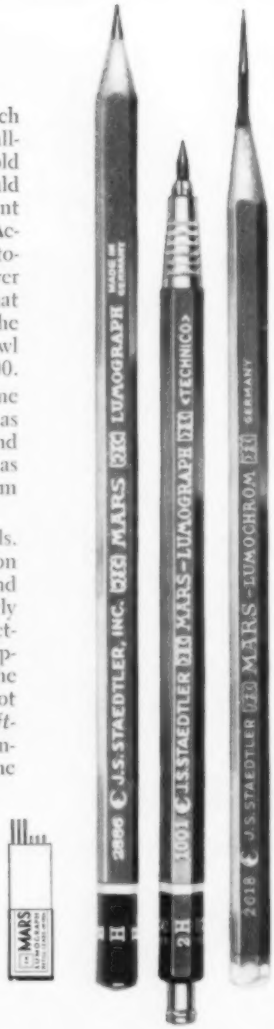


umbrella'd stadia

While it isn't always true, an interesting approach often results in a good design, as in these twin all-weather stadia designed by Harry Barone and Arnold Horn, Pratt architecture students. Each bowl would be umbrella'd by its own tentlike roof of translucent plastic, hung from the center of soaring arches. Accordion-pleated, these roofs are planned to fold together out of the way in fair weather, their lower edges riding along the rims of the bowls. Cables that guy the arches form a decorative pattern tying the two stadia together. The big football-baseball bowl would hold 65,000 spectators; the smaller, 20,000.

No matter which of today's bright ideas become tomorrow's reality, it will be as important then as it is now to use the best of tools when pencil and paper translate a dream into a project. And then, as now, there will be no finer tool than Mars—from sketch to working drawing.

Mars has long been the standard of professionals. To the famous line of Mars-Technico push-button holders and leads, Mars-Lumograph pencils, and Tradition-Aquarell painting pencils, have recently been added these new products: the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman's" Pencil Sharpener with the adjustable point-length feature; and—last but not least—the Mars-Lumochrom, the new colored *drafting* pencil which offers revolutionary drafting advantages. The fact that it blueprints perfectly is just one of its many important features.



The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder. 1904 Mars-Lumograph imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom colored *drafting* pencil, 24 colors.

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HACKENSACK, NEW JERSEY

at all good engineering and drawing material suppliers

reviews

(Continued from page 190)

lowing year. Tryon evidently came out determined to build a capitol for his colony, for he brought with him John Hawks, an architect-builder who had been trained under Stiff Leadbetter. In 1766, New Bern became the capital of the Colony of North Carolina. On January 9, 1767, Tryon and Hawks signed the contract for the designing and construction of the Governor's House. It was completed by June, 1770. It was to serve three purposes: residence, assembly hall, and repository for archives. Hawks made several series of drawings, some of which are in the Public Record in London; others are in the collection of the New-York Historical Society. The drawings show a handsome country mansion of the type which were being illustrated in *Vitruvius Britannicus*—the main house with seven bays, two wings of four bays, connected by a colonnade. The main building was 82′x59′ and the wings each 49′x39′. The material was brick with shingled roofs. Ironically enough, Tryon enjoyed his house for only a year. In June, 1771, he left North Carolina to become the Governor of the Colony of New York. On Manhattan, he is commemorated by Fort Tryon Park.

Owing to the Revolution, the colonial capitol soon fell into disrepair. Twenty-one years after its completion, George Washington wrote of it as "a good brick building but now hastening to Ruins." The next year, 1792, the last Assembly was held in it, for Raleigh became the capitol of the State of North Carolina. The Palace burned in 1798; the east wing was torn down early in the 19th Century; the west wing, originally the stables, after serving many other purposes, is being incorporated in the reconstruction.

William Perry, FAIA, is doing for 18th-Century architecture in this country what Viollet-le-Duc and G. G. Scott did for medieval architec-

(Continued on page 195)

in the wake of a junior tornado!

Havoc reigns when Junior takes a bath! But, as informed architects and builders know, Pomona's "Space-Rite" Perma-glaze deck tile is impervious not only to Junior's hard, scratchy toys and the dirt and grime of his day's foraging—but also to soapy water and even corrosive chemicals, harmful to ordinary surfaces! That's because only Pomona's exclusive fusing process produces this beautiful pebbled finish of flint-rock hardness. Uniform joints are assured through Pomona's "Space-Rite" feature. Shown here, exquisite new Mercedes Blue in Perma-glaze 6" x 6" deck tile.

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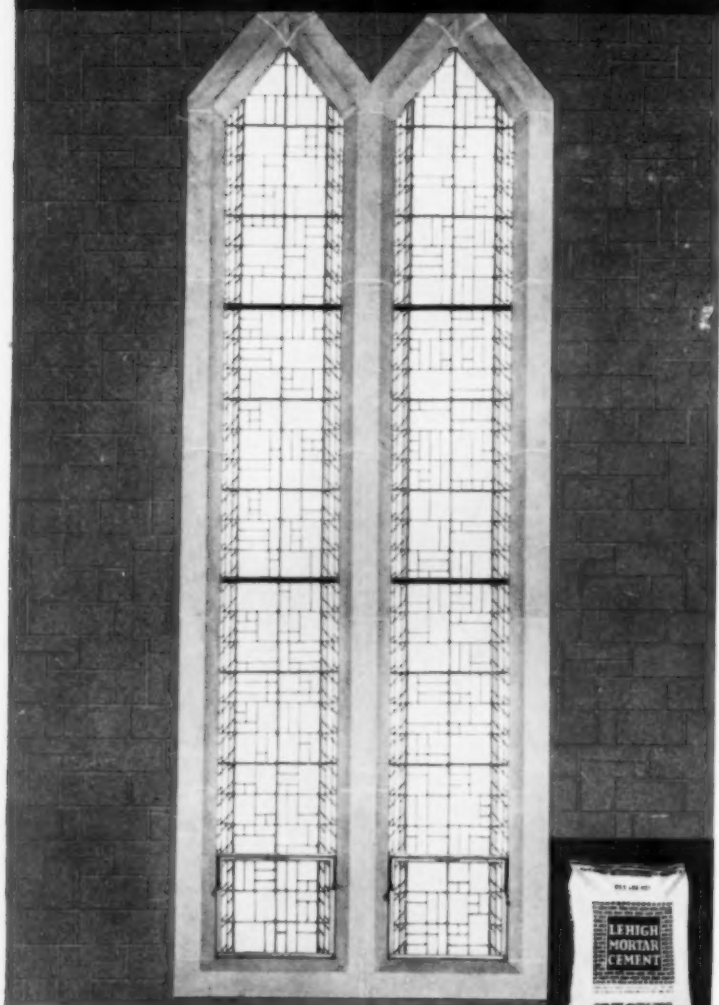

Exposed concrete block lends simple beauty and dignity to the interior walls of this church.

"In the new First Presbyterian Church of Ponca City, Oklahoma, we used Lehigh Mortar Cement with Haydite block, common brick, face brick and stone, and it worked just as well with one as the other," writes Mr. Leo Goatley, the mason contractor. "I've used it for over three years and have never been disappointed."

Mr. Wm. Robertson Jr. of The Robertson Company, general contractor on the job, sums up his preference for Lehigh Mortar Cement this way. "Masons agree that the texture and workability of Lehigh Mortar Cement enables them to get *more work accomplished with less effort.* And this is very important since labor costs represent the major share of the total job."

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Architect: SHAVER & SHAVER, Salina, Kansas

LEHIGH PORTLAND CEMENT COMPANY *Allentown, Pa.*

reviews

(Continued from page 192)

ture in France and England during the last century. It is not surprising that our antiquities have to be rebuilt when we remember that "Tryon's Palace" was a ruin in 21 years, according to our veracious first President.

No architects have been employed as yet to rebuild Noah's Ark or the Tower of Babel. Both were edifices of great size. The *Epic of Gilgamesh* gives the dimensions of the Ark as a cube, each side of which was 195 feet. No dimensions are given for the Tower, which has loomed through the centuries as the tallest building in the world until the completion of the Empire State Building. Current archeological knowledge and theory on both these famous structures is admirably summarized by André Parrot, Curator-in-Chief of the French National Museums, in *Studies in Biblical Archaeology, Nos. 1* and *2*, issued by Philosophical Library, Inc., a commercial publishing house which should not be confused with The American Philosophical Society in Philadelphia, the oldest learned Society in this country, which publishes its *Transactions* and occasional monographs. AGNES ADDISON GILCHRIST

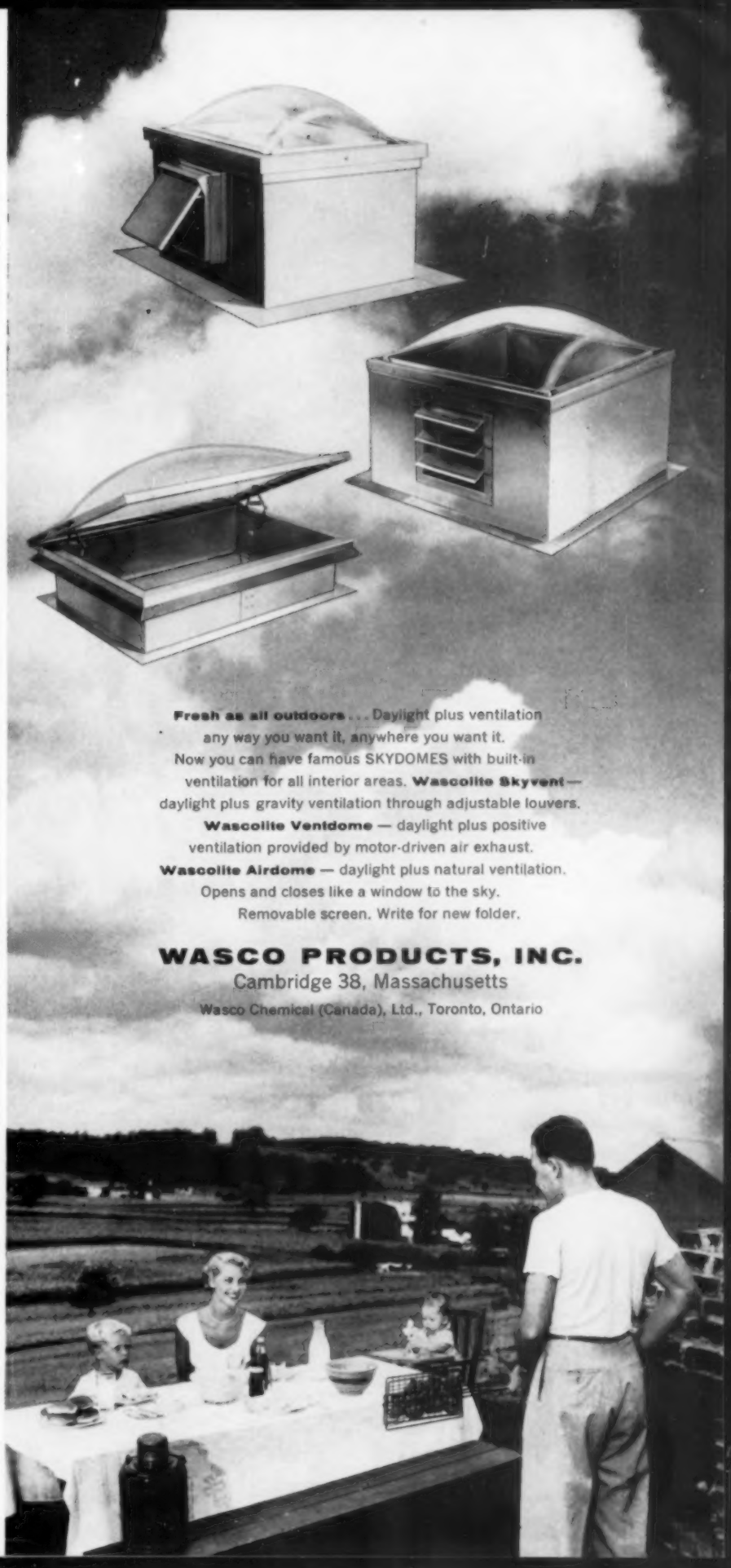
urbane mentor

The Grass Roots Of Art. *Problems of Contemporary Art. Vol. 2. Herbert Read. George Wittenborn, Inc., 38 E. 57 St., New York 22, N. Y., 1955. 160 pp., illus., $2.50*

Herbert Read is one of the leading thinkers on art theory. This book, a republication of an earlier one which is now out of print, is made up of a series of essays whose connecting theme is art.

These pages containing his theories on art, architecture, education, and civilization (among other subjects) make interesting reading for

(Continued on page 198)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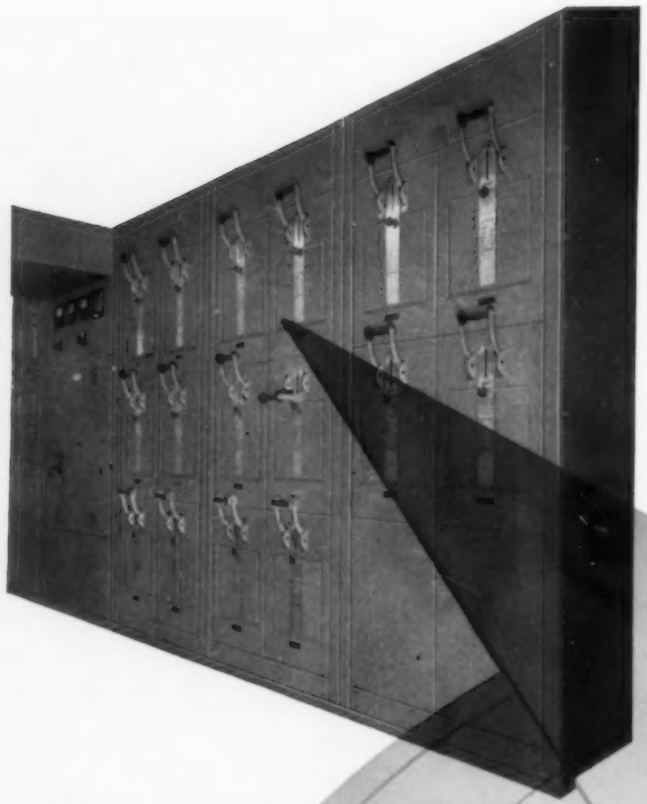

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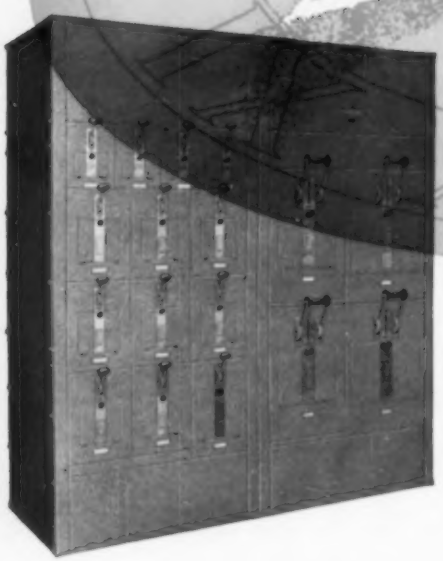

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A safety type switchboard designed for frequent and heavy duty. Features the FA shutlbrak switch, a horsepower-rated, front-operated heavy duty operating switch with quick make and quick break operation and interlocked fuse doors to permit access to fuse compartment only when switch is "off" (Special release provided for access in "on" position.) Heavily silver-plated copper contacts, new clamp type fuseholders and solderless connectors are other features.

Capacities: 30 to 1200 amps., 240 volts AC or DC and 600 volts AC 2, 3 and 4 poles. Rotary operating handles furnished on 30 to 200 amps. capacities. Straight handles on all others.

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The klampswitchfuz or snufarc is a hinged type horsepower-rated operating switch unit that combines both disconnect switch and fuse protection into one unit, assuring years of trouble-free service. Heavily silver-plated copper contacts clamp fuses under pressure for low-resistance contacts. Access to fuses can be had only when door is open.

Klampswitchfuz, capacities 30 to 600 amps., 250 volts AC or DC 2, 3 and 4 poles, single or double throw. Snufarc ratings: 30 to 200 amps., 600 volts AC 2, 3 and 4 poles.

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reviews

(Continued from page 195)

leisure hours. The text is written in an urbane, refined tone; it is on a plane well above our rush-a-day world.

The work could be classified as background reading for inspirational guidance. LAWRENCE E. MAWN

past and present

Lancashire Architectural Guide. *Peter Fleetwood-Hesketh. John Murray, 50 Albemarle St., London W. 1, England. Distributed by Translatlantic Arts Inc., Hollywood-by-Sea, Fla., 1955. 194 pp., illus., $6.75*

Nowhere in the world do yesterday and today, tradition and modernity, confront each other more sharply than in Lancashire. This venerable county palatine, stretching 80 miles across England and separating the Midlands from border regions of the north, is of all major British areas the most highly industrialized. Factory chimneys mark the horizon of its typical landscape, while crumbling abbey and castellated hall dominate the middle distance. Municipal dwelling projects have lately risen, not far from ancestral stone and plaster, but without the garish disharmony that such contrast frequently engenders.

It is along these fringe contacts between past and present that Fleetwood-Hesketh's admirable volume undertakes to march. Frontiers of time and place lead his readers through Celtic twilights and feudal battle-dust, past the transitional Norman arches of Furness Abbey and Cartmel Priory, the storybook stronghold of Hoghton Tower, to Elizabethan Swarthmore Hall, and thence through modern Gothic bypaths to the Generating Station of the British Electricity Authority at Westwood-Wigan. Significantly, the station's frankly functional design

(Continued on page 200)

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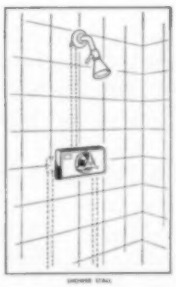

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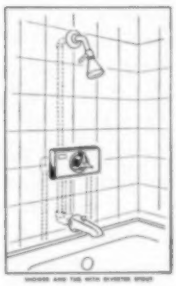

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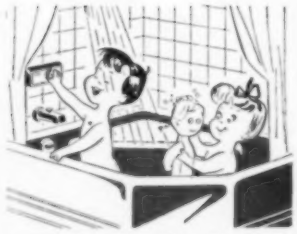

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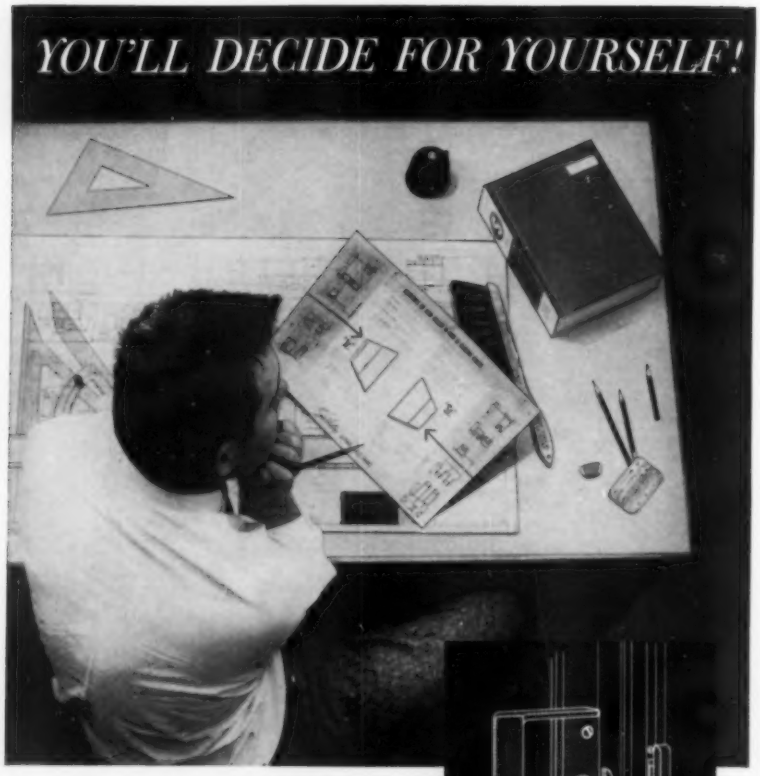

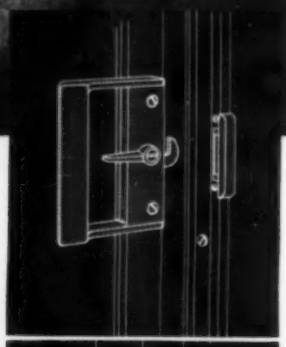

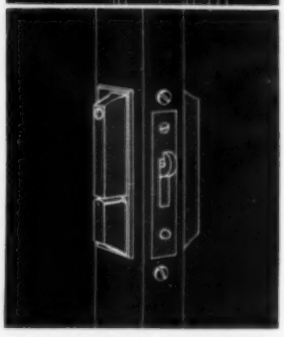

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reviews

(Continued from page 198)

is in its way as esthetically satisfying as are the churches, the crenelated keeps, and manor houses of earlier days.

Adaptation to natural surroundings and human uses is indeed a characteristic of British architecture in general—a quality nowhere more observable than in Lancashire. The county has in common with Yorkshire's West Riding the rounded Pennine hills. It shares with that region the dark mill-stone grit for houses and field-walls, quarried and used in Cyclopean blocks. The central valleys yield abundant limestone, which is worked in smaller sizes. There, dry-jointed red sandstone, as well as cobblestones, are bonded with brick and provide additional building material. In the northwest corner of the county the rocks are volcanic. By contrast, both of scenery and construction, the Lancastrian coast country where peat smoke rises from the chimneys of timber-framed whitewashed cottages, claims kinship with Ireland, some 130 miles across the sea. However, as our author makes clear, despite these diversities Lancashire as a whole possesses certain distinguishing characteristics: intense coloring, dark soil, vivid green grass and foilage; fewer and smaller trees (usually smooth-topped with an eastward slant); fences of vertical flagstone, iron-cramped; low-pitched roofs of brown flag or gray-green slate.

Parish by parish, Lancastrian architecture is cleanly depicted against its proper background, thanks to a 40,000-word alphabetically arranged gazetteer. At random we choose transport to Downham:

"An unspoiled village of grey houses on a hillside north of Pendle . . . The church of St. Leonard has a Perpendicular tower but was otherwise rebuilt" in 1910. "Its windows, save those at the east end and in the Assheton chapel . . . are filled with clear glass, adding much to the cheerfulness of the interior. . . . There are five bells," three very old and two given by members of the Assheton

(Continued on page 202)

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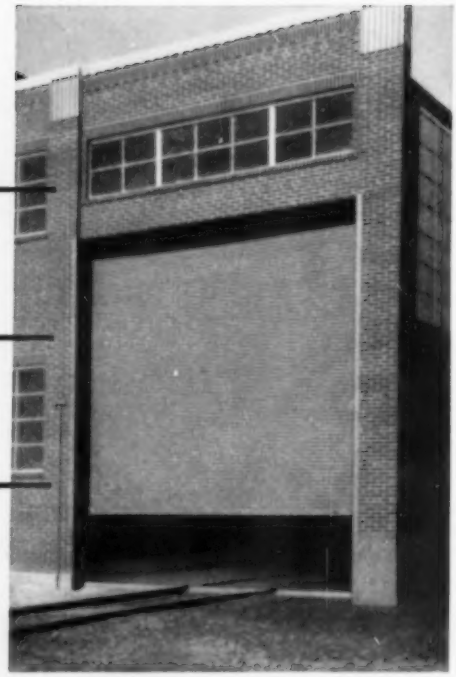

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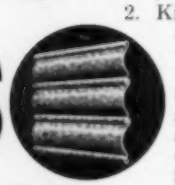

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reviews

(Continued from page 200)

family. "Downham Hall, a large, ancient and solid house, became a seat of the Asshetons in 1558. It was remodeled about 1835 in simple late-Georgian Classic, with Grecian detail, but some of the old stonework remains visible. Built into the house over the north portico are two shields . . . with the arms of Henry Lacy, Earl of Lincoln, and John of Gaunt, Duke of Lancaster. Many of the steep hillocks and knolls about the estate are accentuated by groups of tall, rock-nested beeches." From the Hall's elevated position are excellent views of Pendle and Longridge. The Lower Hall and Manor House are attractive mullioned dwellings, "a window in the former having small leaded panes of an elongated honeycomb pattern." Downham was saved from electric pylon disfigurement in the 1930's by Sir Ralph Assheton, who bore the cost of underground cables.

Again, traveling north from Wigan to Chorley, "Adlington Hall is seen on the right, a red Georgian house of 1779 with pediment and pilasters. In a landscape of sharply contrasted distances and firm outlines, verdant pasture and smooth plantations, with the blue mass of Rivington Pike beyond, it has the quality of a brightly coloured aquatint" and presents a rarely effective combination of scenery and architecture.

The gazetteer devotes some 8000 words each to Manchester and Liverpool. Surprisingly enough, these commercial centers afford fine material for architectural study—both medieval and modern. The American observer is impressed by the persistence of chimneys as prime features in the multiple dwelling design, particularly as exemplified by the newer projects.

Fleetwood-Hesketh has produced a work which is not only, as its name implies, an architectural guide, but also one which should prove an inspirational source-book. It will appeal to the truly progressive designer of edifices, who assimilates what is best of the past into structures consonant with present-day provenance. Now that on-the-site materials and terrain-integrated design are once more in favor, a panorama of so varied a congeries against so diverse a background should prove definitely welcome.

The volume before us is one of a

series under the general editorship of John Betjeman and John Piper, whereof two parts have already appeared, treating respectively of Berkshire and Buckinghamshire. It is well printed, and the 270 halftone illustrations are above average. A superb feature is the exceptionally complete index.

WILLIAM HURD HILLYER

beyond structure

Contemporary Sculpture. *Carola Giedion-Welcker. Wittenborn & Company, 38 E. 57 St., New York 22, N. Y., 1955. 360 pp., illus., $8.50*

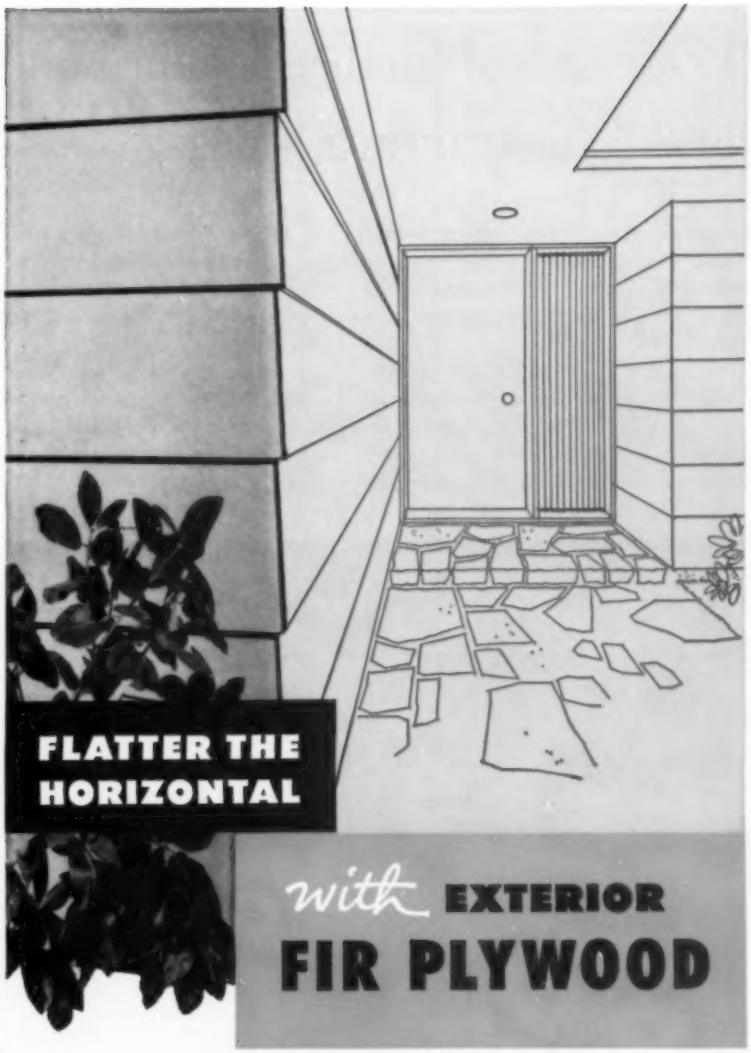
Architectural sculpture is returning to favor. From architecture's break with the traditional past a great need has resulted: all architectural ornamentation has ceased. Structure alone cannot satisfy the yearnings of the human spirit: it strongly craves for emotional, inspiring, spiritual effects in buildings. Ornamentation will return!

Proper ornamentation will provide a suitable expression of spiritual values. Sculpture has a natural affinity for architecture; it often seems more architectural than architecture itself. The publication of this book is timely; it offers architects and other readers a broad view of modern sculpture.

The field of sculpture has widened in the last quarter of a century; it has broadened into types and treatments previously unknown. By comparison, architecture has progressed slowly. Each type is exemplified in this book through the pictured work of well-known sculptors. The reader receives a concise briefing in varied sculptural approaches through short, expert comments on each; nearly all types are adaptable for architectural application.

Although the comments are generally in the rarefied, sophisticated

(Continued on page 205)



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Exterior plywood of other western softwoods also available; look for this DFPA grademark.

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Many leading American architects make Carrara Glass first choice for washroom walls and partitions of important buildings. There are good reasons for this preference.

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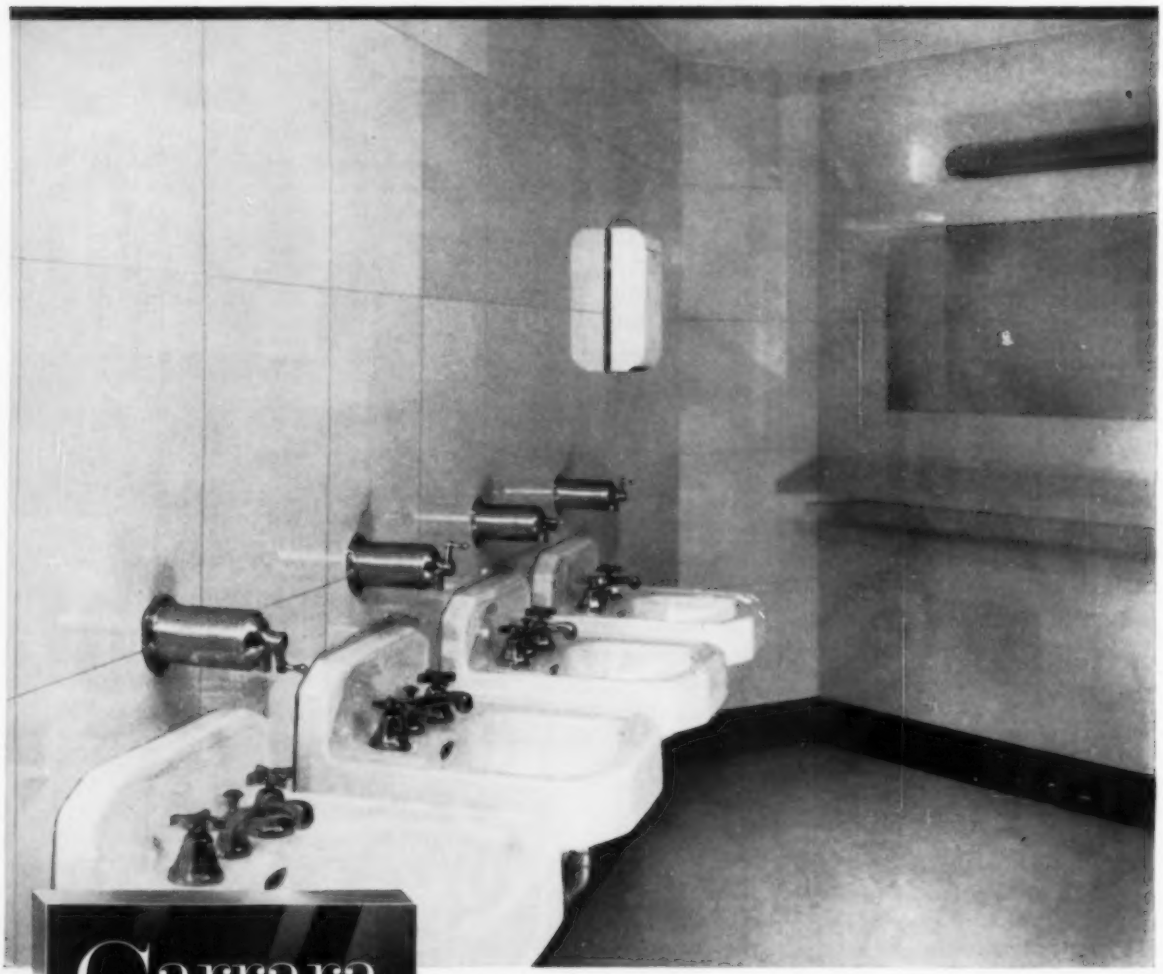
Midland Building, located in Cleveland, Ohio, was designed by Architects Garfield, Harris, Robinson & Schafer, of Cleveland.



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reviews

(Continued from page 203)

idiom of the professional art critic and esthete, this should not deter architectural readers. The illustrations can be read easily and remarkably well. LAWRENCE E. MAWN

unique effort/unique record

The Story Of The Tower. *Frank Lloyd Wright. Horizon Press. 220 W. 42 St., New York, N. Y., 1956. 133 pp., illus., $6*

Architectural adventure recorded in photographs makes an attractive book of this, I believe the only publication available to show the stages of a tall building as it goes up. Joe Price, one of two sons and heirs to the Price pipe-line enterprise, was the photographer of the growth of the family headquarters from ground to TV aerial. The head of the enterprise, H. C. Price, explains the reasons and reactions of a responsible client and citizen. And the words of the architect on tall buildings formulated over half a century, are gathered and edited to make his approach to the problem clear. A unique record of a unique effort, this book is also the best presentation available of one of Frank Lloyd Wright's great architectural achievements. Recommended to architects, investors, and unassuaged sidewalk superintendents.

EDGAR KAUFMANN, JR.

daring, imaginative

Robert Maillart. *Max Bill. Verlag Girsberger, Zurich. Distributed by Wittenborn & Company, 38 E. 57 St., New York 22, N. Y., 1955. 184 pp., illus., $10*

The daring, imaginative, various designs of Maillart's bridges are well known in this country; this is due in great part to the first edition of this book, published in 1949.

(Continued on page 206)

SPECIFY EXTERIOR PLYWOOD and BATTEN SIDING to add a crisp, well-tailored look to contemporary or ranch-style homes. Big panels give you unusual design flexibility. Battens can be spaced to line up exactly with windows or other openings. Exterior plywood siding cuts application time up to one-third. Won't split or puncture. Panels ⅜" thick meet FHA requirements for application as *combined* siding-sheathing.

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reviews

(Continued from page 205)

Nearly all of his innovational bridges are pictured. For each bridge, informative details are listed: dimensions of span, width, height; placement of reinforcing, size of members, construction of temporary supports.

Like that of most innovators, the course of his career was seldom calm and smooth. It is not surprising therefore that he encountered skepticism and opposition; it is surprising that he was able to accomplish so much original work.

The text is in German, French, and English. This second edition, which has been sympathetically and appreciatively written by the Swiss artist-architect Max Bill, is well worth reading. LAWRENCE E. MAWN

interior problems

How to Decorate and Light Your Home. *E. W. Commery and C. Eugene Stephenson. Coward McCann, Inc., 210 Madison Ave., New York, N.Y., 1955. 256 pp., illus., $6.75*

This is a book prepared for the consumer, genuinely commendable to the architect in spite of its nonprofessional editorial approach. The authors have resisted sentimentality, concentrated on facts, and made enough demands on the consumer's intelligence to justify the reader's working a bit to understand what they are saying—with more-than-adequate rewards.

The book is largely concerned with color, and in an entirely new approach, with color in its proper relationship to lighting. The fact that one of the authors, E. W. Commery, is a Fellow of the Illuminating Engineering Society, and in charge of Residential Lighting at General Electric, and that the other author, C. Eugene Stephenson, is a widely practiced decorator of many years' top standing, accounts for the soundness of the color-light relationship presen-

tation. The chapters "About Color and Light," "Beginning Your Color Plans," "Creating Your Color Scheme," and "Thirty-Five Methods for Lighting Your Home" are further supplemented by seven color-plate pages that illustrate seven color-scales. A comprehensive Appendix of 17 pages relates decorator color names, dictionary color names, Oswald Notations, Munsell Notations, and Reflectance Values, and also contains a Lumen Data Sheet and a Lighting Guide listing specifications of lighting solutions for the 137 "living activity situations" illustrated in the book.

With the architect called upon more and more frequently to plan interiors as a completing part of his function, a book such as *How to Decorate and Light Your Home* can do much to help fill the unfortunate hiatuses in the average architect's knowledge of interior design. L.S.

heightened effects

Drawing Trees. *Henry C. Pitz. Watson Guptill Publications, Inc., 24 W. 40 St., New York 18, N. Y., 1956. 128 pp., illus., $5.75*

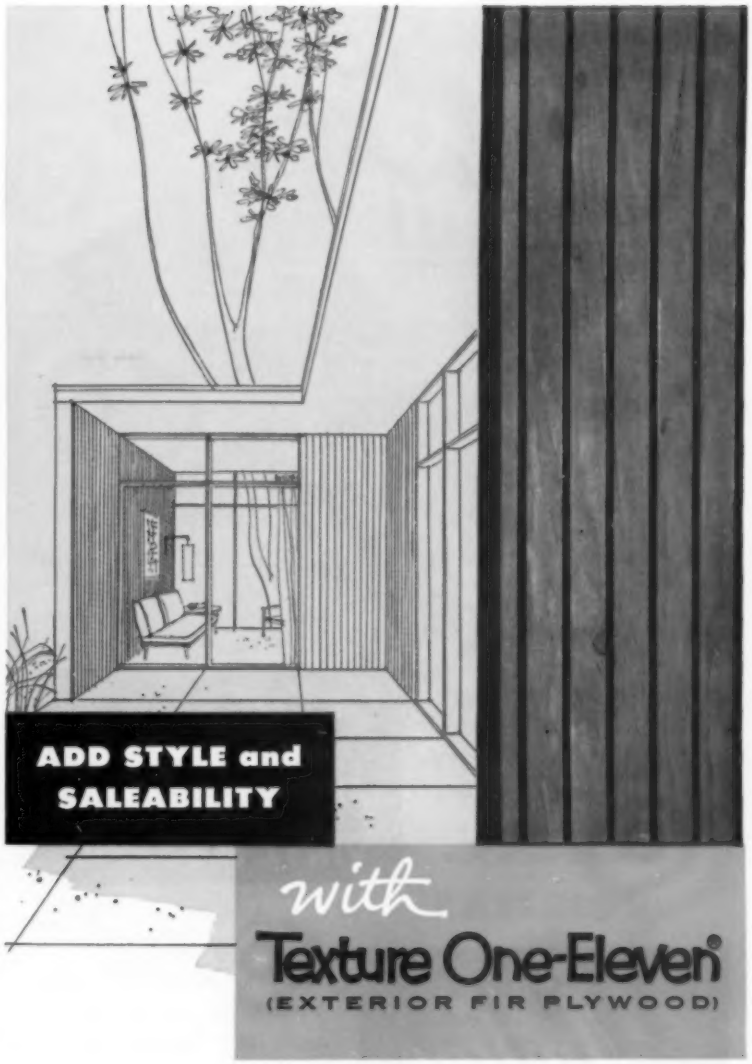
Architectural renderings and sketches profit immeasurably from the judicious insertion of trees. Often only trees can provide the certain special effects desired. Suitable delineation of a variety of tree types and of proper type character will heighten these effects.

Hence derives the value of this book. In it the characteristic form and structure of various tree families are analyzed. A large assortment of techniques is ably demonstrated: dry brush, pen, pencil, lithographic stick, pastel crayon, and charcoal.

The text is short; the illustrations are generous in number. This is a useful, instructive book.

LAWRENCE E. MAWN

(Continued on page 209)



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reviews

(Continued from page 207)

background data

Labor Relations and Productivity In The Building Trades. *William Haber & Harold M. Levinson. Bureau of Industrial Relations, University of Michigan, Ann Arbor, Mich., 1956. 266 pp., $4.75*

This study is the result of a survey of problems of the construction industry. Among subjects discussed are: labor relations, unemployment, compensation, unions, working rules, hours of work, labor efficiency and productivity.

The text is simple and businesslike in form. Facts and figures are ably presented; charts, graphs, and tables effectively supplement the text. This book should be required background reading for anyone interested or involved in the construction field. LAWRENCE E. MAWN

books received *(continued)*

UNESCO. Study Abroad, Vol. 7, 1955-56. Columbia University Press, 2960 Broadway, New York 27, N.Y., 1955. 703 pp., $2

The Grass Roots of Art: Problems of Contemporary Art, Vol. 2. Herbert Read. George Wittenborn Inc., 38 E. 57 St., New York 22, N.Y., 1955. 160 pp., illus., $2.50

Robert Maillart. Max Bill. Verlag Girsberger, Zurich. Distrib. in U.S. by Wittenborn and Company, 38 E. 57 St., New York 22, N.Y., 1955. 184 pp., illus., $10

Contemporary Sculpture. Carola Giedion-Welcker. Wittenborn and Company, 38 E. 57 St., New York 22, N.Y., 1955. 360 pp., illus., $8.50

Architects' Working Details. Vol. 3. Edited by D. A. C. A. Boyne. The Architectural Press, London. Distributed in U.S. by Frederick A. Praeger, Inc., 105 W. 40 St., New York 18, N.Y., 1956. 160 pp., illus., $5

Architects' Year Book 6. Edited by Trevor Dannatt Elek Books Ltd., 14 Great James St., London WC1, England. Distributed in U.S. by Frederick A. Praeger, 105 W. 40 St., New York 18, N.Y., 1956. 260 pp., illus., $8.75

Eternal Egypt. Clement Robichon and Alexandre Varille. Philosophical Library, Inc., 15 E. 40 St., New York 16, N.Y., 1955. 143 plates, $6

Fundamentals of Electroacoustics. F. A. Fischer. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, N.Y., 1955. 186 pp., illus., $6

This is Japan—1956. Asahi Shimbun, Yuraku-Cho, Chiyoda-Ku, Tokyo, Japan, 1956. 350 pp., illus., $5.80

Human Relations in Interracial Housing. Daniel M. Wilner, Rosabelle Price Walkley, and Stuart W. Cook. University of Minnesota Press, Minneapolis 14, Minn., 1955. 167 pp., $4

The Nature of Cities. L. Hilberseimer. Paul Theobald and Company, 5 N. Wabash Ave., Chicago 2, Ill., 1955. 286 pp., illus., $8.75

Adventures of a Slum Fighter. Charles F. Palmer. David McKay Company, Inc., 55 Fifth Ave., New York 3, N.Y., 1955. 272 pp., $4

Air Conditioning Refrigerating Data Book. Design Vol. 9th Edn. American Society of Refrigerating Engineers, 234 Fifth Ave., New York 1, N.Y., 1956. 231 pp.

Marvels of Ancient Rome. Margaret R. Scherer. Phaidon Press, Inc., 575 Madison Ave., New York, N.Y., 1955. 430 pp., illus., $7.50

American Architects Directory. Edited by George S. Koyl. R. R. Bowker Company, 62 W. 45 St., New York 36, N.Y., 1955. 748 pp., $20

Engineering Drawing and Geometry. Randolph P. Hoelscher and Clifford H. Springer. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y., 1956. $8

Significance of Tests and Properties of Concrete Aggregates. Special Technical Publication No. 169. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa., 1956. 393 pp., illus., $6 (paperbound, $4.25)

An American Architecture. Frank Lloyd Wright. Edited by Edgar Kaufmann. Horizon Press, 220 W. 42 St., New York, N.Y., 1955. 269 pp., illus., $10

How To Make Built-In Furniture. Mario Dal Fabbro. Dodge Books, 119 W. 40 St., New York 18, N.Y., 1955. 262 pp., illus., $6.95

The British New Towns Policy. Lloyd Rodwin. Harvard University Press, Cambridge, Mass., 1956. 252 pp., illus., $7.50

Basic Guide for Store Modernization. Store Modernization Institute, Darien, Conn., 1956. 24 pp., illus., $10

A History of The Croatian People. Francis R. Preveden. Philosophical Library, Inc., 15 E. 40 St., New York 16, N. Y., 1956. 134 pp., 64 plates, $7.50.

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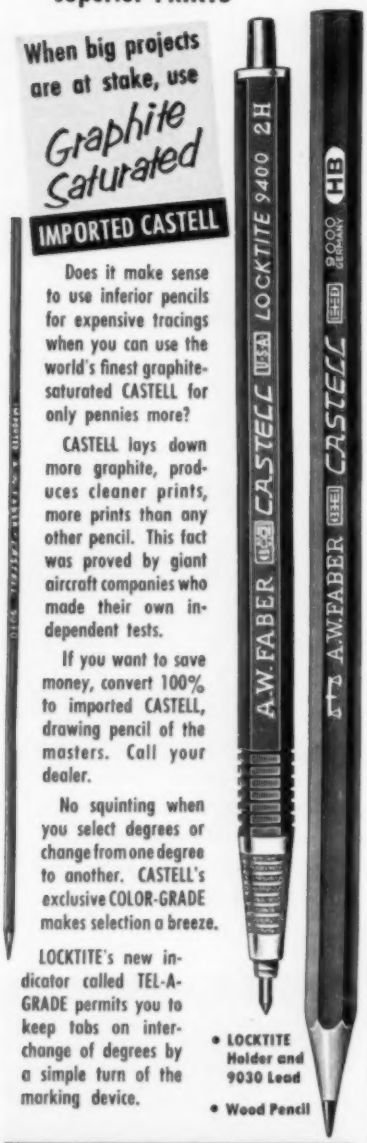

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notices

appointments

Affiliation of ROGER A. GLENDENNING, as supervisor of construction, was announced by R. DUANE CONNER, Architect, 2520 Classen Blvd., Oklahoma City 6, Okla.

Appointment of KENNETH REID, Architect, as Consultant for Public Relations and Research, was recently announced by office of ERNEST J. KUMP, Architects-Planning Consultants, 450 Ramona St., Palo Alto, Calif.

SOL KING has been appointed Director of Architecture for the firm of ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, Detroit, Mich.

PEREIRA & LUCKMAN, Architects-Engineers, 9220 Sunset Blvd., Los Angeles 46, Calif., recently announced the following appointments: FELIX ANDREW KALINSKI as Director of Military Projects, and ARTHUR W. MCKELVEY, JR., as Director of Public Relations.

Director of the New York Public Library, EDWARD G. FREEHAFER, recently announced appointment of KARL KUP as Chief, Art and Architecture Division.

LOUIS I. KAHN, Professor of Architecture, UNIVERSITY OF PENNSYLVANIA, is currently ALBERT FARWELL BEMIS Visiting Professor of Architecture at MASSACHUSETTS INSTITUTE OF TECHNOLOGY. EDGAR KAUFMANN, JR., Designer, is ALBERT FARWELL BEMIS Lecturer during the current term. Both appointments are under grant to MIT from ALBERT FARWELL BEMIS CHARITY TRUST.

DR. CHESTER RAPKIN, authority on housing market analysis and urban land economics, has been appointed a research associate professor, School of Fine Arts, UNIVERSITY OF PENNSYLVANIA.

(Continued on page 218)

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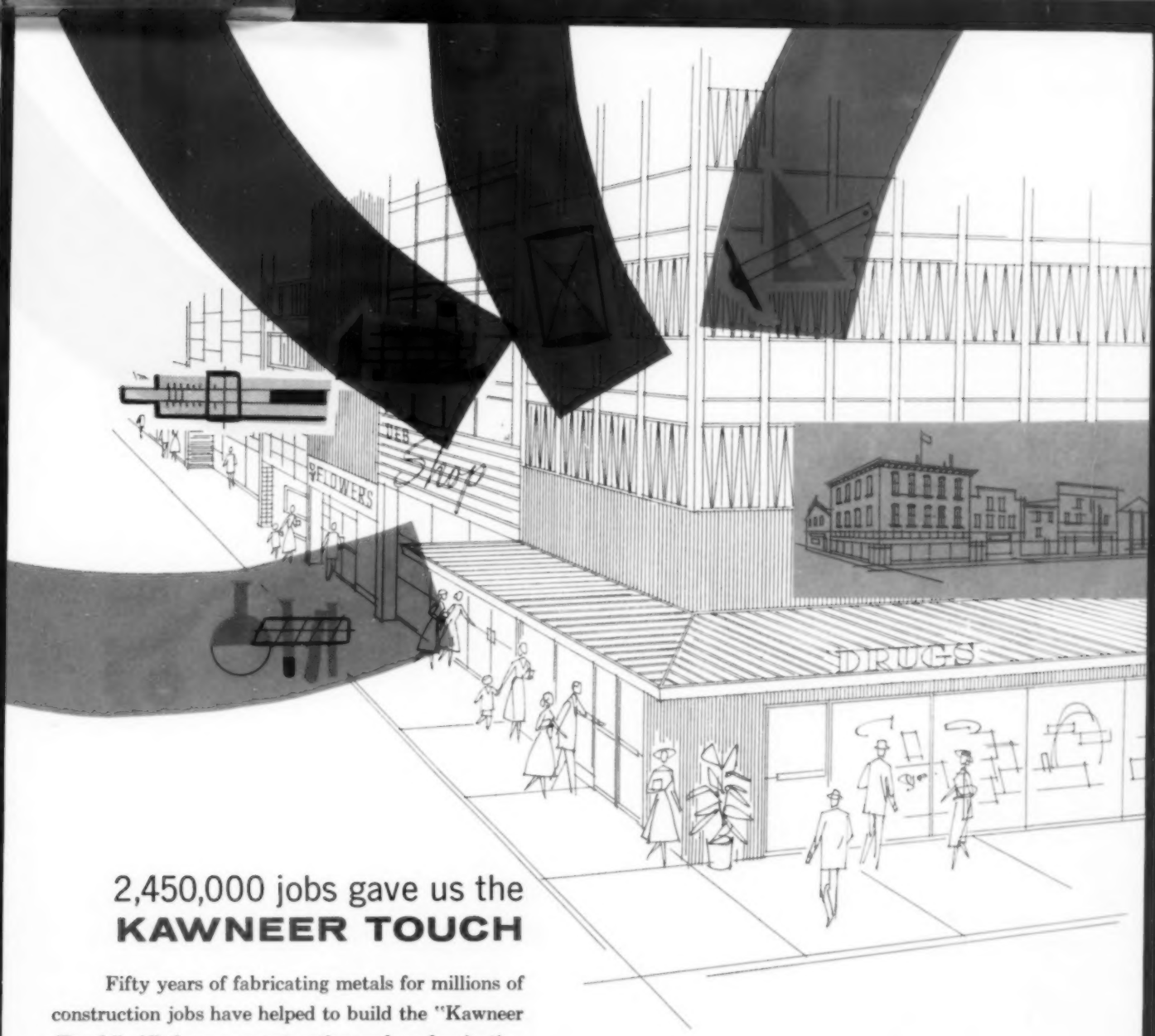

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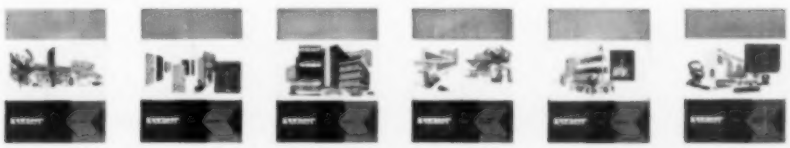
1906–1956



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A complete line of narrow stile doors with the unique interchangeable hardware feature; wide stile doors; honeycomb core flush doors; and **new** full-vision, sliding glass doors for homes, offices and stores.

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c. sun control products
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d. facing material
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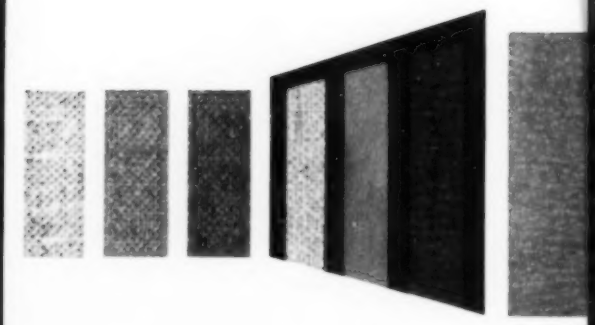

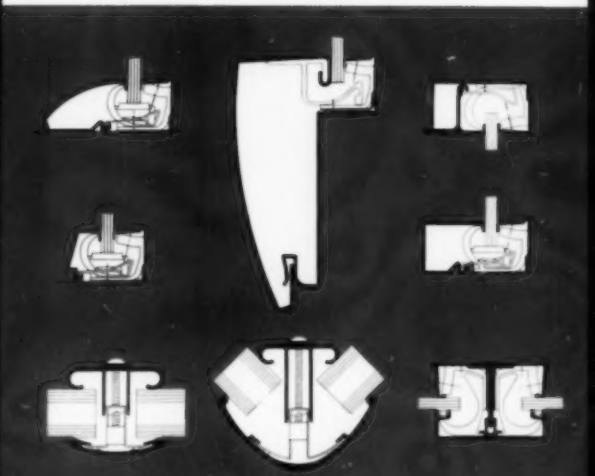

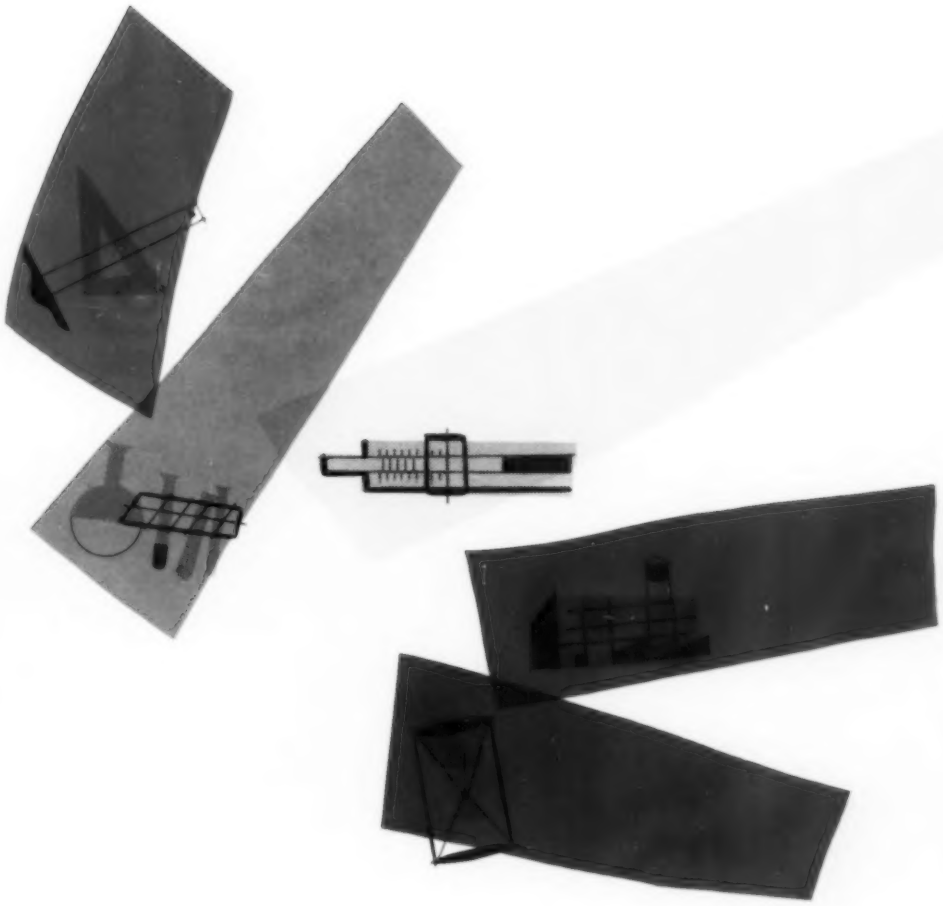

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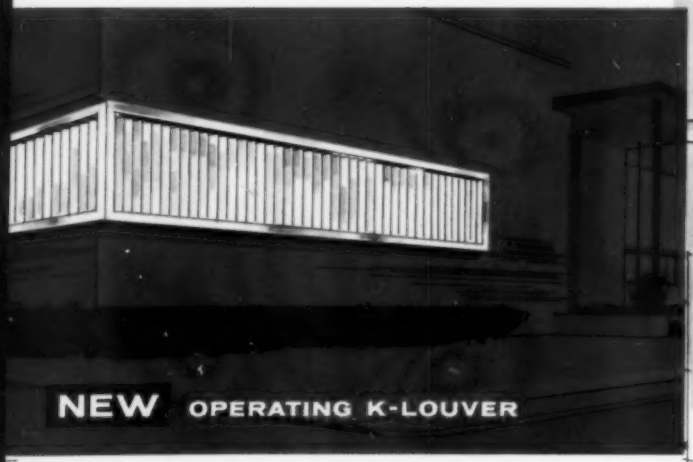

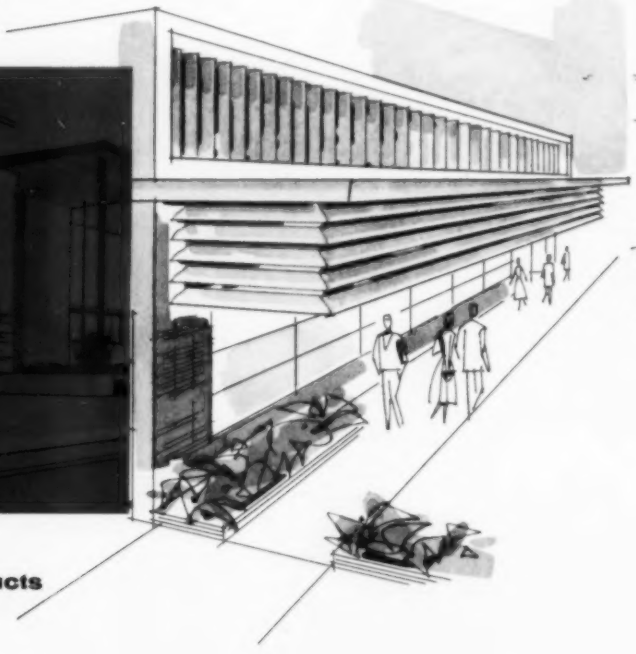

c. sun control products

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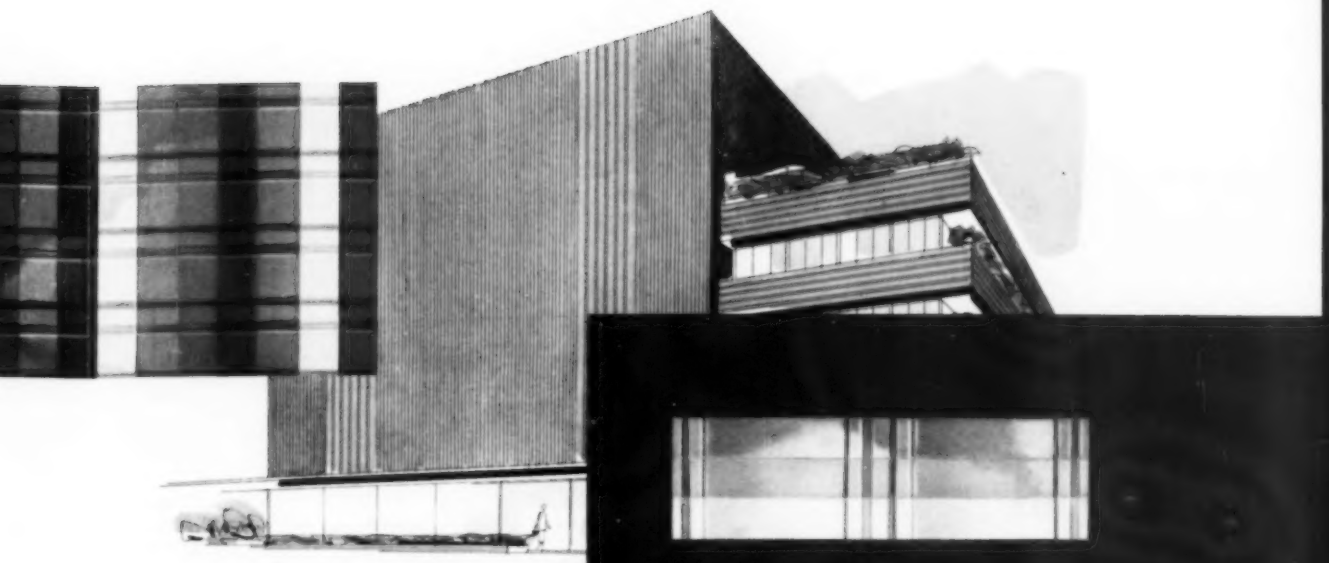

d. facing material

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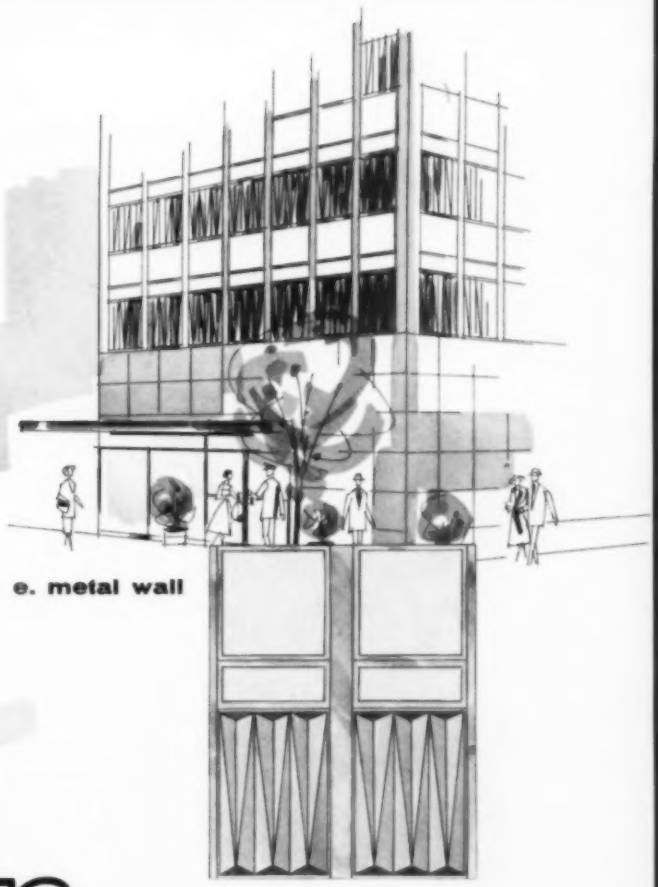

e. metal wall

f. unit wall

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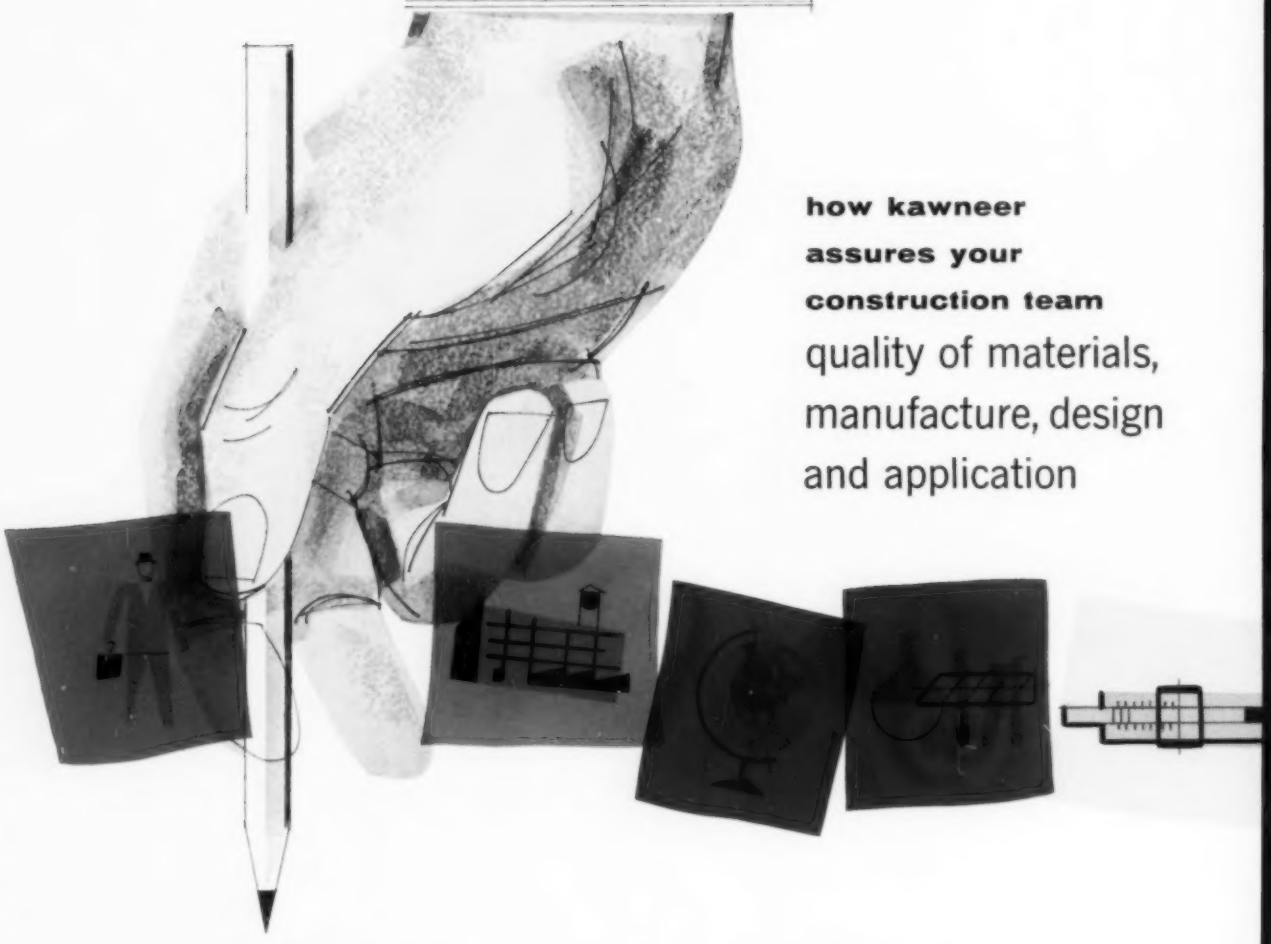
ARCHITECTURAL PRODUCTS DIVISION

1906–1956



how kawneer assures your construction team

quality of materials, manufacture, design and application

110 Field Representatives
A group of men thoroughly experienced in every phase of architectural metal work. They work with you and for you. Their job is to help adapt Kawneer products to your jobs.

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This experience provides a storehouse of building front information, ideas and know-how. It's at work on your job from beginning to end, solving problems and working out new ways to help you.

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Nationwide warehousing in factories and warehouses assures Kawneer customers quick service. Materials are just a few hours away from any job. Your jobs get done faster, more efficiently and economically.

Research and Development
A special department devoted to architectural products development and design. A crew of designers and research engineers who know the building field help your ideas grow.

Nationwide Service
1200 factory-trained dealers in towns and cities throughout the U. S. and Canada are on the job to service you. Their metal inventories and skills assure you a finished job in accordance with your plans.

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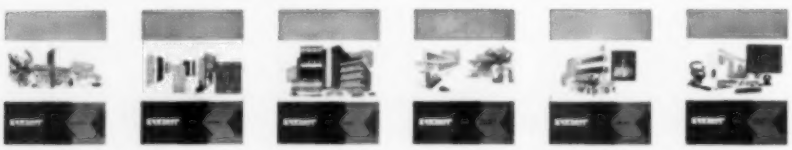
Kawneer endeavors to help the architect and builder control construction costs wherever possible. By factory pre-assembly of metal wall units, for example, erection time can be predetermined to establish a fixed cost.

Out front for 50 years with the Kawneer Touch



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. . . FOR GENERAL ILLUMINATION OR ACCENT LIGHTING—

- ★ Surface glare entirely eliminated
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Contains useful reference.

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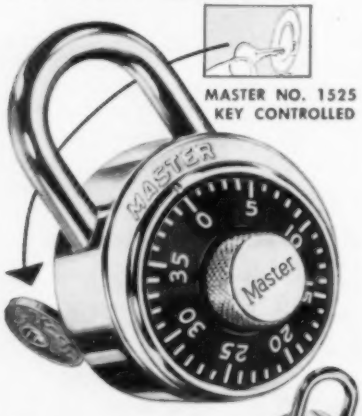

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Master Combination Padlocks are *not built-in* — slamming or jarring of locker doors cannot upset their locking mechanism! Double-wall construction — stainless steel outer case — heavy-wrought steel inner case. Self-locking, automatically disarranging tumblers —hardened locking latch.

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Master Padlocks
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Master Lock Company. Milwaukee 45, Wis.
World's Largest Padlock Manufacturers

notices

(Continued from page 210)

elections

CONVECTOR MANUFACTURERS ASSOCIATION, Detroit, Mich., elected following officers for 1956 at recent meeting: President, J. M. WHALEN, Convector Sales Manager, TRANE COMPANY, LaCrosse, Wis.; Vice-President, R. S. RICKABAUGH, Heating Products Division Sales Manager, TUTTLE & BAILEY, INC., New Britain, Conn.

CARRIER CORPORATION Board of Directors at March meeting elected CLOUD WAMPLER, Chairman of Board, and WILLIAM BYNUM, President.

NATIONAL HOUSING CENTER, Washington, D. C., elected THOMAS P. COOGAN, Chairman; RICHARD G. HUGHES, Vice-Chairman; and named LEONARD FRANK a Board Member at recent annual Board meeting.

AMERICAN SOCIETY OF HEATING AND AIR-CONDITIONING ENGINEERS recently installed the following officers: JOHN W. JAMES, Chicago, Ill., President; PETER B. GORDON, New York, N.Y., First Vice-President; ELMER R. QUEER, University Park, Pa., Second Vice-President; RALPH A. SHERMAN, Columbus, Ohio, Treasurer.

ARCHITECTS COUNCIL OF NEW YORK CITY elected following officers for 1956; KENNETH W. MILNES, President; GEOFFREY PLATT, Vice-President; HARRY YARISH, Secretary; RAYMOND IRRERA, Treasurer.

JAMES CONFORTI, JR., Lawyer-Engineer, was recently elected to Board of Directors of William L. Crow Construction Company, 101 Park Ave., New York, N.Y.

AMERICAN INSTITUTE OF CONSULTING ENGINEERS announces election of CARLTON S. PROCTOR, of MORAN, MUESER & RUTLEDGE, Consulting Engineers, New York, as President.

(Continued on page 222)

Prevents Water Contamination
*Boosey Fixed Air Gap

You can eliminate direct connections between water lines and sewers and thus prevent water supply contamination, when you specify the Boosey Fixed Air Gap.

DESIGNED FOR DRAINS FROM: elevated water reservoirs, processing equipment, air conditioning units, storage tanks, refrigeration units, hospital equipment and kitchens, etc.

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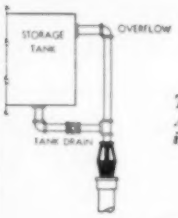
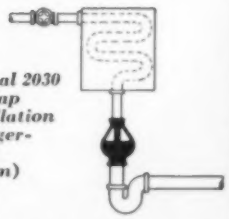


Typical 2021 Air Gap installation



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800,000 Concrete Masonry units

used in stair wells, corridor walls, elevator shafts

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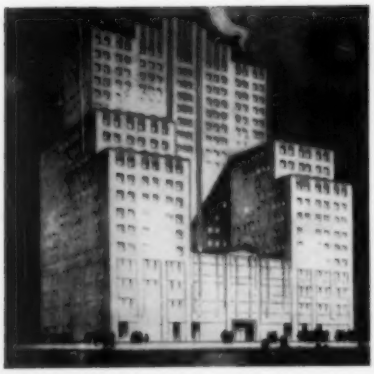
Mid-America Home Office, The Prudential Insurance Company of America, Chicago, Illinois—Naess & Murphy, Architects.



Commonwealth Life Insurance Co.,
Louisville, Kentucky
Engineers: Stevenson Engineering Co.
Fixtures: Holdenline Co.

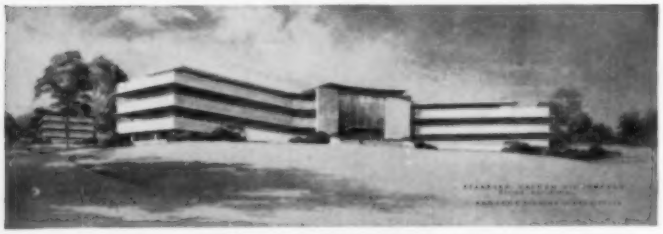
McColl-Frontenac Oil Co. Ltd.,
Montreal, Que.
Architects: Barott, Marshall,
Montgomery and Merrett
Fixtures: Curtis Lighting of Canada

Police Facilities Building,
Los Angeles, Calif.
Architects: Welton Becket, F.A.I.A., and
Associates and J. E. Stanton, A.I.A.,
Associated Architects
Fixtures: Columbia Electric and Mfg. Co.

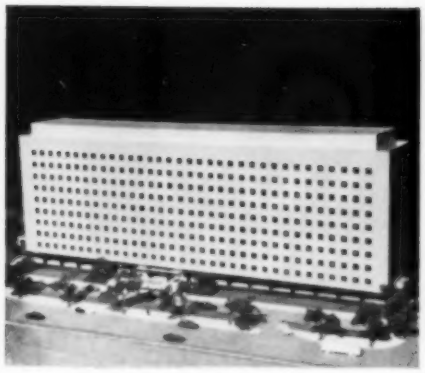
Socony-Mobil Building, New York
Owner: Galbreath Corporation
Architects: Harrison & Abramovitz, John B. Peterkin
Fixtures: Ruby-Philite Corp.

Amoco Building, New York
Architects: Emery Roth & Sons
Fixtures: Eastern Lighting Products

All new...and



Standard Vacuum Building, Harrison, N. Y.
Architects: Eggers and Higgins
Fixtures: Fullerton Manufacturing Co.

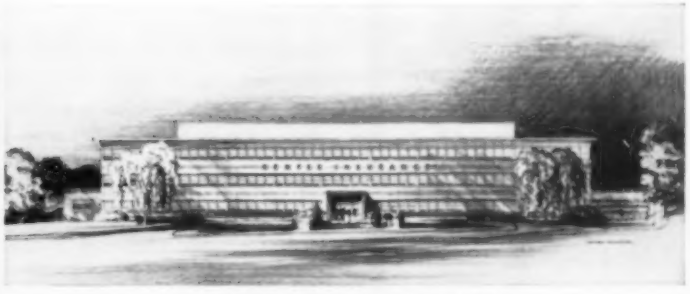


General State Authority
Health and Welfare Building,
Harrisburg, Pa.
Architects: Lacy, Atherton & Davis
Fixtures: Smithcraft Lighting

United States Rubber Co. Building
Addition, New York
Architects: Harrison & Abramovitz
Fixtures: Globe Lighting Products Inc.

Sinclair Oil Building, Chicago
Owner: John W. Galbreath & Co., Inc.
Architects: Holabird & Root & Burgee
Fixtures: Day-Brite Lighting Co.

City-County Building, Detroit
Architects: Harley, Ellington & Davis Inc.
Fixtures: Fullerton Manufacturing Co.



Kemper Insurance Co., Summit, N. J.
Architects: Childs and Smith
Fixtures: Day Brite Lighting Co.

Do you have your copy?
"ARCHITECTS AND ENGINEERS HANDBOOK OF LIGHTING GLASSWARE"
Corning Bulletin LS-43
If not, send for your copy of this useful publication.

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These important new buildings represent modern solutions to an infinite number of problems – structural, aesthetic, and economic.

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Corning Lightingware is the product of continuing research in *light control*. It has given you in recent years the true light-source transmission of Corning Alba-Lite, the directive lighting effects of Corning Fota-Lite, the new Pattern No. 70 low-brightness curved lens panel in lengths up to 48 inches.

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Scientifically planned to aid YOU in your work . . . designed to support you comfortably whether you're chewing your pencil or bent over hard at work . . . engineered from the quality materials YOU would recommend, with independently adjustable seat, back and footring to conform to your physique . . . and with removable, replaceable covers in a wide range of fabrics and colors to match YOUR decorating plan.

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notices

(Continued from page 218)

Producers' Council

New National Headquarters of PRODUCERS' COUNCIL, INCORPORATED now 2029 K St., N.W., Washington, D.C.

consulting service

FOREMOST FOUNTAINS, INC., 250 W. 57 St., New York, N. Y., announce a new free consulting service, available to architects for planning and setting up of fountain and food-service installations.

merger

BRIDGEPORT BRASS COMPANY, headquarters in Bridgeport, Conn., a major producer of brass, copper, and aluminum mill products, and HUNTER DOUGLAS ALUMINUM, Riverside, Calif., and Flemington, N. J., a leading producer of aluminum strip, have combined forces and facilities by exchange of Hunter Douglas for Bridgeport Brass common stock.

p/a congratulates . . .

RAYMOND G. NORDSTROM, recently elected Vice-President and General Manager of REFLECTAL CORP., architectural products subsidiary of BORG-WARNER CORP., Chicago, Ill.

FRANK J. ROONEY, Miami, Fla., and LESTER C. ROGERS, Chicago, Ill., respectively installed as President and Vice-President of THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

FRANK KEREKES, Dean of the Faculty, MICHIGAN COLLEGE OF MINING AND TECHNOLOGY, as 1956 President of AMERICAN CONCRETE INSTITUTE.

DONALD E. PARKS, recently named Product Manager, AMERICAN KITCHENS DIVISION, AVCO MANUFACTURING CORPORATION, Connersville, Ind.

IRVING R. SEELY, Administrative Vice-President, KAWNEER COMPANY, Niles, Mich., newly appointed member of board of directors.

(Continued on page 224)

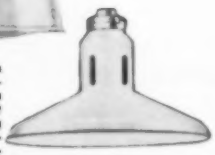
AT NO EXTRA COST

SLOTTED-NECK construction is an original ABOLITE development. It costs you no more than ordinary reflectors.

ABOLITE SLOTTED-NECK lighting fixtures provide longer lamp life because lamps operate at cooler temperatures.

You can have ABOLITE All-White

SLOTTED-NECK ABOLITE fixtures stay cleaner longer. Dust and grime is forced through ventilator slots by continuous convection currents.



ALL-WHITE finish (inside and outside) gives you a modern, efficient appearing lighting fixture which compliments contemporary architecture.

slotted-neck reflectors

Actual tests show that ABOLITE ALL-WHITE SLOTTED-NECK lighting fixtures give 36% more illumination than ordinary reflectors after 12 weeks continuous use. In addition, modern ABOLITE fixtures provide 7% more uplight, and a 1000 watt bulb operates 40°F cooler in a SLOTTED-NECK ABOLITE reflector.

All these features mean more and better light with an absolute minimum of maintenance . . . and *at no extra cost!*

ABOLITE Lighting DIVISION
THE JONES METAL PRODUCTS CO.
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ANOTHER RIXSON FIRST!

a floor type closer with Underwriters' Laboratories Approval

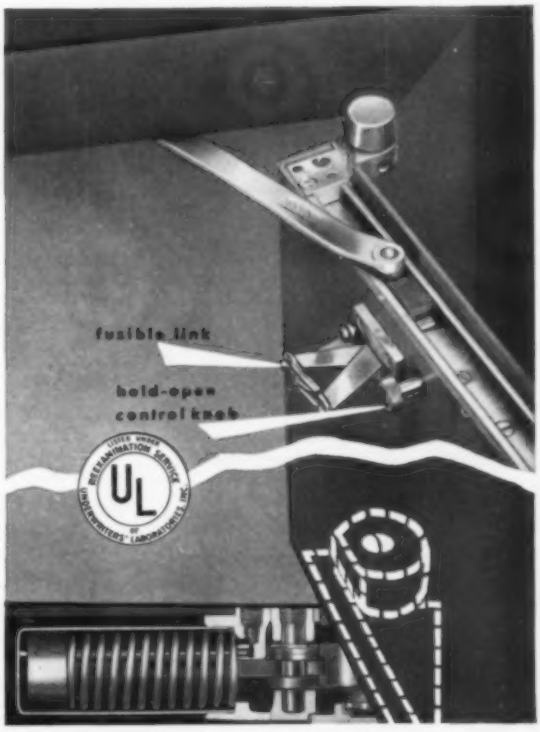
RIXSON Uni-checks, N.H.O.(no hold open), the smooth functioning door closers that are installed in the rigid floor . . . have the approval of the Underwriters' Laboratories for fire doors, when furnished with a special iron ball bearing top pivot.

RIXSON UNI-CHECKS with no. 36 fusible link hold-open arm

ideal for interior fire doors

The special U.L. approved RIXSON Uni-check can be supplied with a hold-open that also has Underwriters' Laboratories approval. The RIXSON no. 36 hold-open arm (illustrated) holds the door at 90°. In case of fire the fusible link releases at 160°F and the door closes automatically. A firm push will also close the door. The hold-open is easily engaged or disengaged by a turn of the control knob.

specify* RIXSON *throughout



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notices

(Continued from page 222)

GEORGE S. SIEGRIST, newly appointed Vice-President, ABOLITE LIGHTING DIVISION, THE JONES METAL PRODUCTS COMPANY, West Lafayette, Ohio.

LYNDOL H. PALIN AND WILLIAM G. BARRY, appointed General Sales Manager and Assistant Sales Manager respectively, Flush Door Division, GENERAL PLYWOOD CORPORATION, 32 & Market St., Louisville, Ky.

DAN W. ORAM, new Executive Director of Sales, KLEMP METAL GRATING CORPORATION, 6601 S. Malvina, Chicago, Ill.

JOHN H. COLBY, recently appointed General Sales Manager, JOHNSON SERVICE COMPANY, Milwaukee 1, Wis.

ROBERT C. WHITE, newly named Chief Product Specialist, CARRIER CORPORATION's Machinery and Systems Division, Syracuse, N. Y.

L. B. MCKNIGHT, President, CHAIN-BELT COMPANY, Milwaukee, Wis., recently elected a Director of THE HEIL CO., Milwaukee.

W. STEN PETERSON, new Manager of Market Research, HOTPOINT CO., Chicago, Ill.

THEODORE C. (TED) NORRIS, newly appointed Assistant Manager, Cleveland District Sales Office, UNITED STATES STEEL CORPORATION.

AMERICAN CONCRETE INSTITUTE Award Winners: FRANKLIN R. MCMILLAN (Henry C. Turner Medal); JOHN I. PARCEL (Alfred E. Lindau Award); CHARLES S. WHITNEY, BOYD G. ANDERSON, EDWARD COHEN, KEITH G. MOODY, IVAN M. VIEST, RICHARD C. ELSTNER, and EIVIND HOGNESTAD (Wason Medals).

WAYNE VAUGHAN, President of WAYNE VAUGHAN & COMPANY, INC., DRYWALL INTERIORS, awarded 1955 Certificate of Craftsmanship in the basic trades by SOUTHERN CALIFORNIA CHAPTER, AIA.

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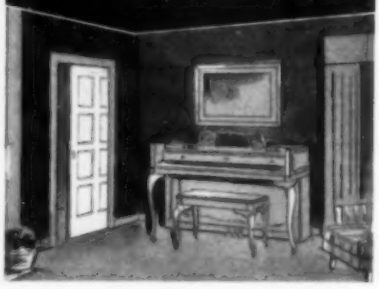

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New Improved Patented

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Installs in minutes to last a housetime!

Pivotal connection of header and jambs makes easy fit and plumb.

FEATURING REMOVABLE TRACK

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- Adjustable 3 Ways
- Takes All Wall Materials
- Completely Packaged

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DUNHAM RECESSED CONVECTOR controls corridor temperature in a modern school, saves premium passageway space. Tamperproof models available.

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Just name what you want in radiation . . . then depend on DUNHAM

Depend on Dunham when you design your next heating layout and you'll save yourself a lot of trouble. It's so simple to find and specify *everything* you need in heating equipment when you use the Dunham Catalog.

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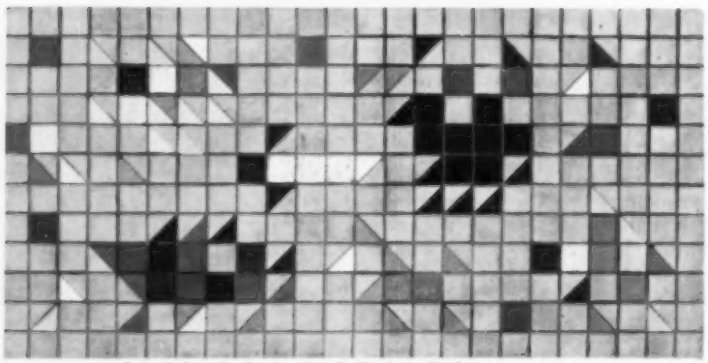
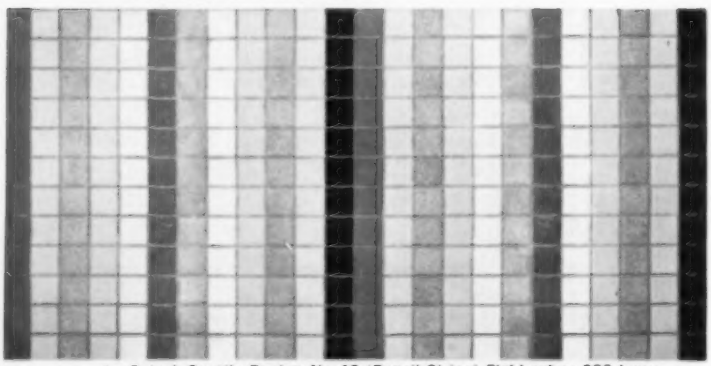
presenting...

new patterns in *Suntile* ceramics

TWO OF THE NINE BASIC 2' x 1' MOTIFS



▲ Spivak Suntile Design No. 6 (Birds in Flight)
Field color: 121 Larkspur Range



▲ Spivak Suntile Design No. 10 (Pencil Stripe) Field color: 283 Ivory

Here is an exciting new design opportunity for you — a coordinated group of contemporary patterns developed in Suntile Satinized Ceramics by Max Spivak, famed ceramic muralist.

Each pattern is made up of 1" x 1" unglazed tile mounted on regular 2' x 1' sheets. With these basic motifs, you can create a wide variety of fresh wall and floor treatments — murals, stripes, borders, fabric-like textures, geometric or random patterns.

Says Designer Spivak —"Our aim is to

SEND COUPON FOR DATA, FULL COLOR RANGE

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☐ *Folder showing Suntile patterns by Max Spivak in full color.*

☐ *New Suntile Catalog giving data on the full line.*

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Company _____

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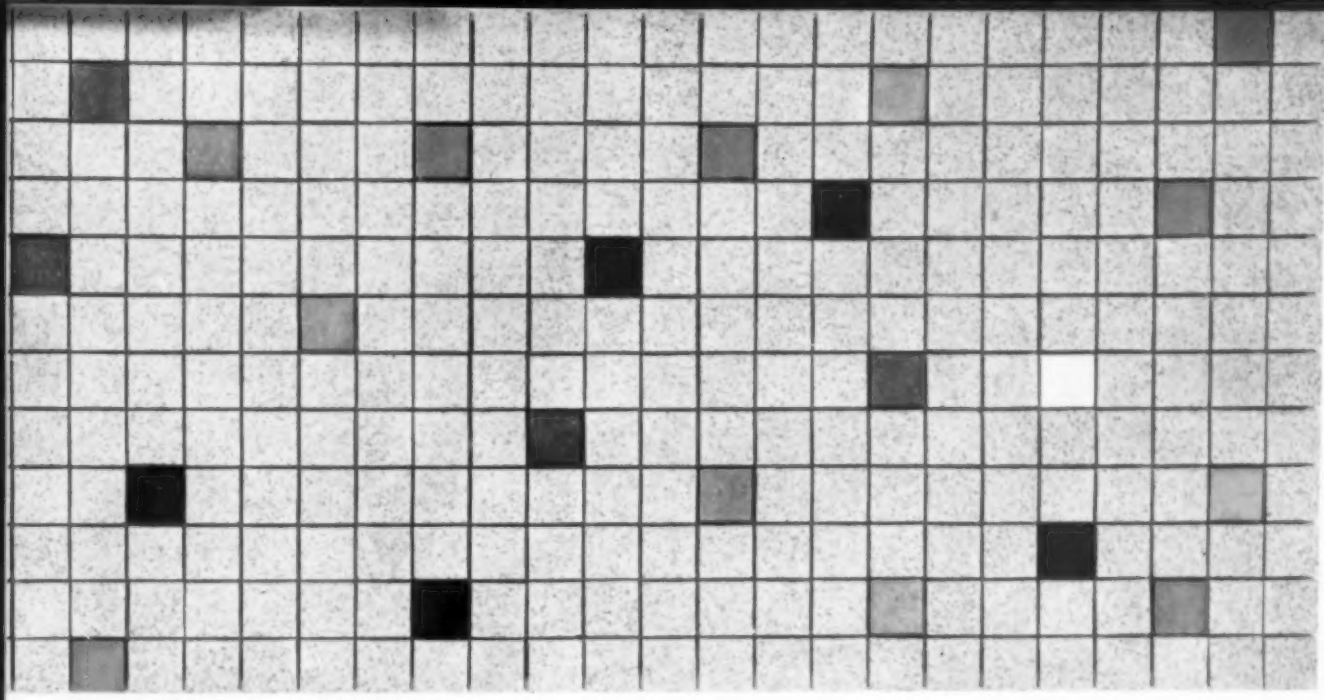

▲ Spivak Suntile Design No. 16 (Static Buckshot)
Field color: 202 White Granite

by Max Spivak

make available to architects and designers economical stock patterns in ceramic tile which will satisfy current interest in new forms of surface enrichment.

"Nine basic motifs were developed with relationships of color and pattern which permit them to be combined in many different ways. and to be used with standard Suntile.

"To allow maximum variety of application, they were executed in rugged natural clay and porcelain Suntile. These tiles are equally serviceable in walls or floors, indoors or out."

Spivak Suntile Designs, Copyright 1956

THE CAMBRIDGE TILE MFG. CO.

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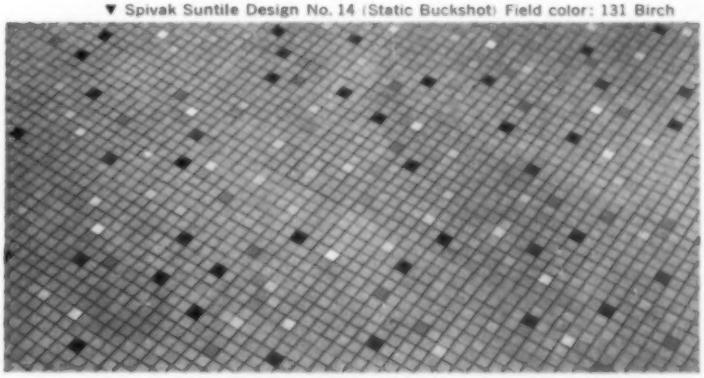
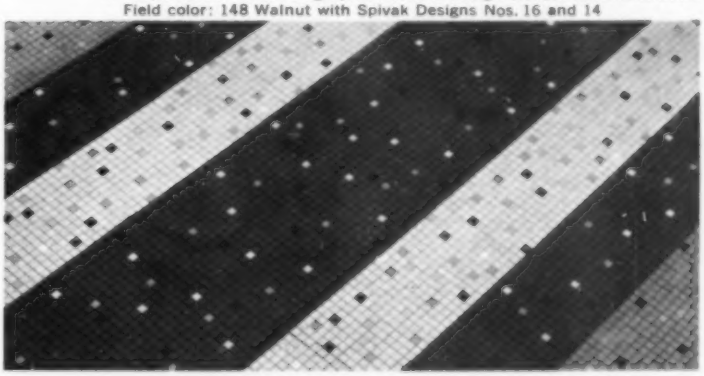
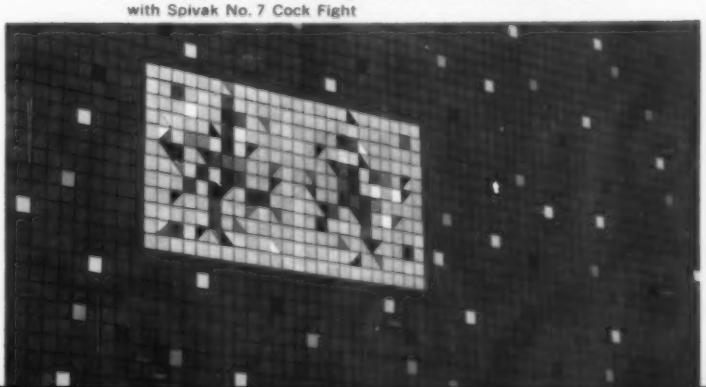
▼ Spivak Suntile Design No. 14 (Static Buckshot) Field color: 131 Birch



▼ Stripe Pattern combining Spivak Suntile Design No. 13 (Static Buckshot)
Field color: 148 Walnut with Spivak Designs Nos. 16 and 14



▼ Field of Spivak Suntile Design No. 13 Walnut (Static Buckshot)
with Spivak No. 7 Cock Fight



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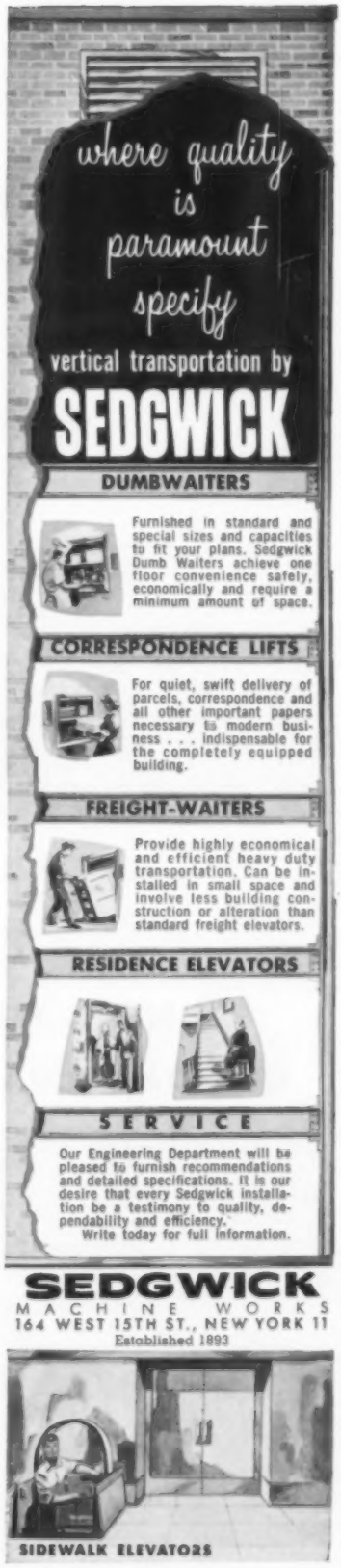
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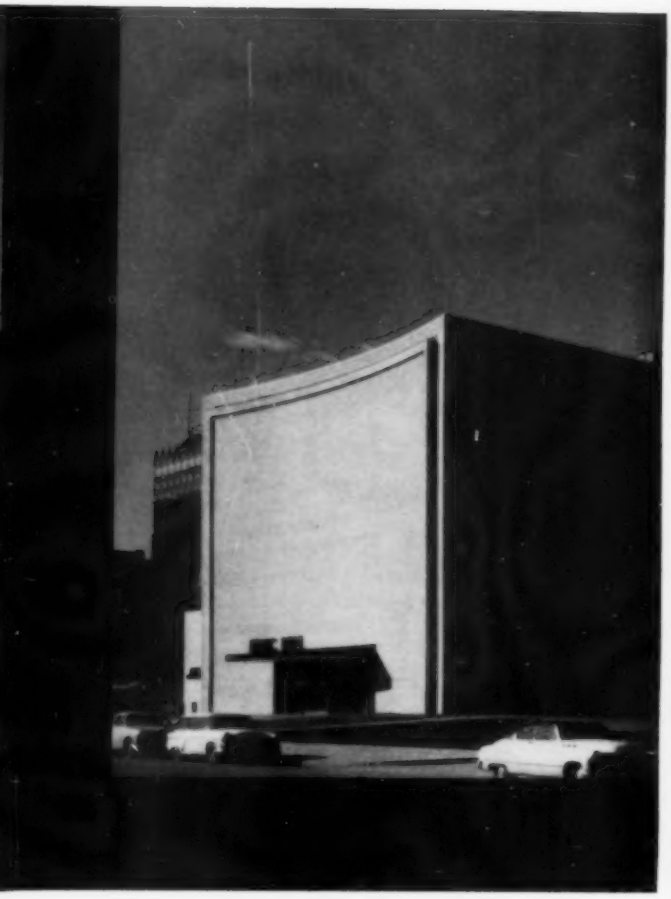
View of the music hall, one of the areas where Ceco-Meyer Steelform concrete floor joist construction was used . . . in this case, in the slab levels. Same framing was used for other floors, ramps and concourses.



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This is the Omaha Civic Auditorium, showing the music hall entrance at left and the exhibit hall entrance at right. Leo A. Daly Company, Architects and Engineers; Peter Kiewit Sons' Company, General Contractors.

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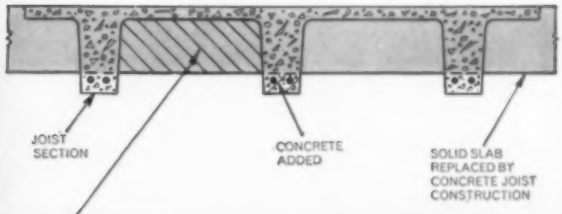

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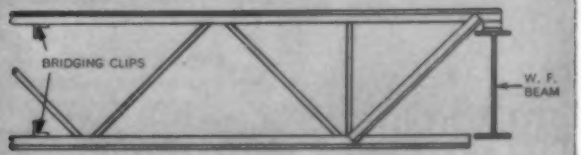

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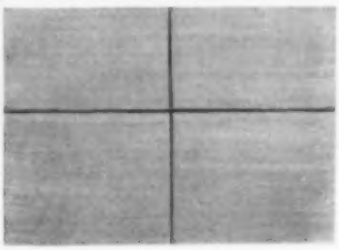

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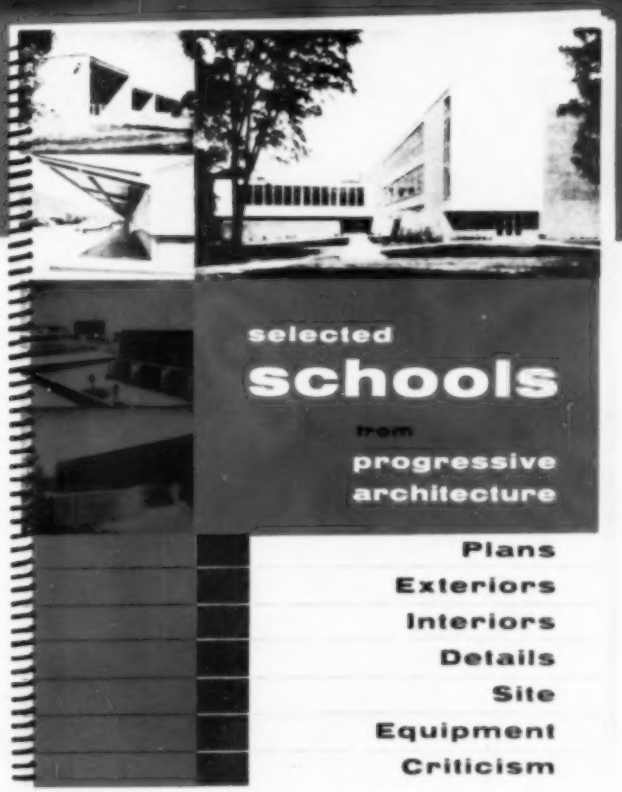

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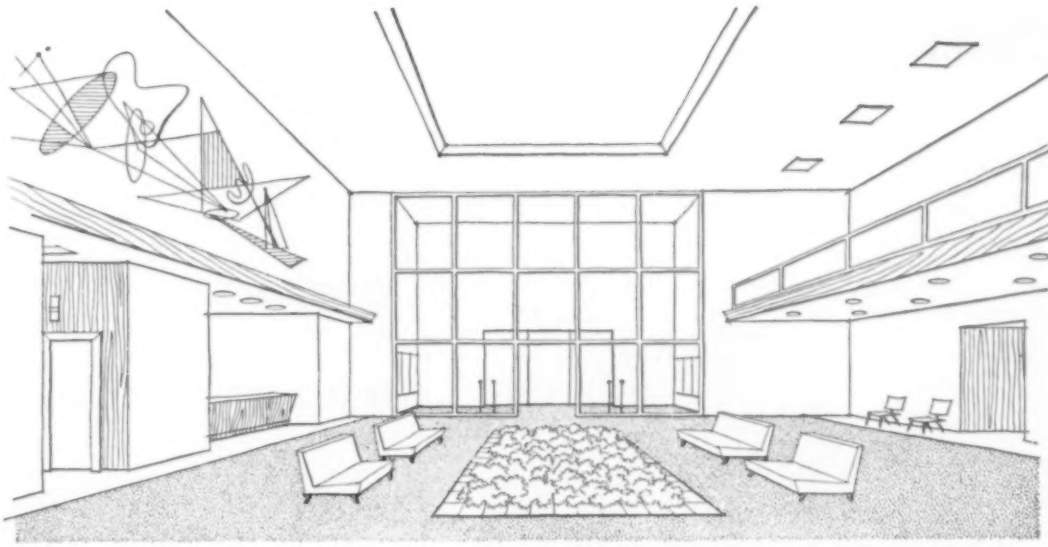

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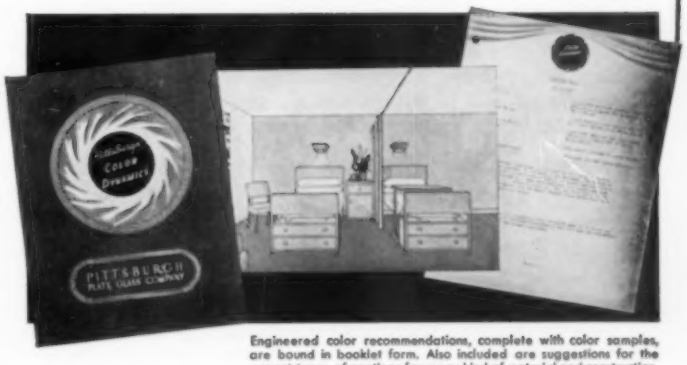

Engineered color recommendations, complete with color samples, are bound in booklet form. Also included are suggestions for the correct types of coatings for every kind of material and construction.

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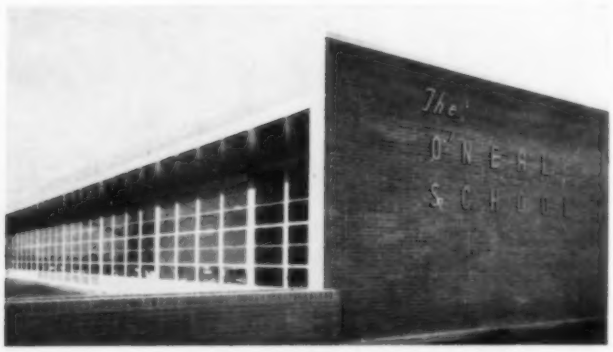
Fenestra
SCHOOL DESIGN NEWS

Fenestra Galvanized-Bonderized Intermediate Steel Window curtain walls give O'Neal School the

LOWEST LIFETIME WINDOW MAINTENANCE COSTS!



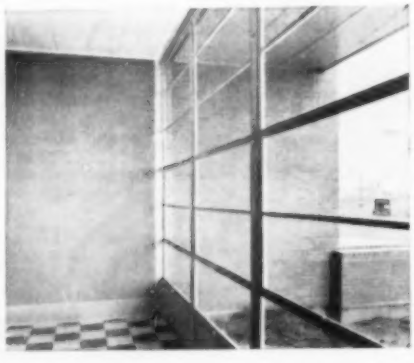
O'Neal Elementary School. Poplar Bluff, Missouri. *Architect:* Glen Drew, Poplar Bluff, Missouri. *Contractor:* George A. Gassman Construction Company, Poplar Bluff, Missouri.

One of the quality features of the schools designed by Glen Drew, AIA, Poplar Bluff, Missouri, is floor-to-ceiling curtain walls of Fenestra Galvanized-Bonderized Windows.

This design saves money two ways! First, during construction, the prefabricated window sections are quickly installed to enclose the building and eliminate work lost because of bad weather. Second, the exclusive Fenestra Galvanized-Bonderized finish assures minimum window maintenance cost for the life of the building. No painting is needed and the strength of steel keeps the windows weather-tight and easy to open. They will never warp, sag, swell or stick, and the hardware stays on even with hard use.

Hot-dip galvanizing is recognized as the finest finish for steel windows. The zinc surface actually alloys with the base steel! Fenestra galvanizing is done in a special plant with automatic controls to assure a smooth, uniform surface. Then the windows are Bonderized for extra protection and to prepare them for decorative painting, if desired.

Fenestra Galvanized-Bonderized Intermediate Steel Windows are made in a wide range of styles and sizes for all types of school designs. For complete information call your local Fenestra Representative —listed in the Yellow Pages—or mail the coupon below.



Here's how Fenestra Galvanized-Bonderized Intermediate Steel Windows are used to form the complete exterior curtain wall for O'Neal School classrooms. They are easy to frame with the Fenestra Acoustical Building Panels used for the structural roof and overhang. The sill vent is glazed and painted in bright colors for extra decoration.

These bright, cheerful classrooms make school more enjoyable for students and teachers. The Fenestra Intermediate Projected Windows give maximum daylighting. Strong steel keeps them weather-tight and always easy to open. A light touch of the hand is all that's needed. Choose Fenestra Galvanized-Bonderized Intermediate Steel Windows for your next school building.

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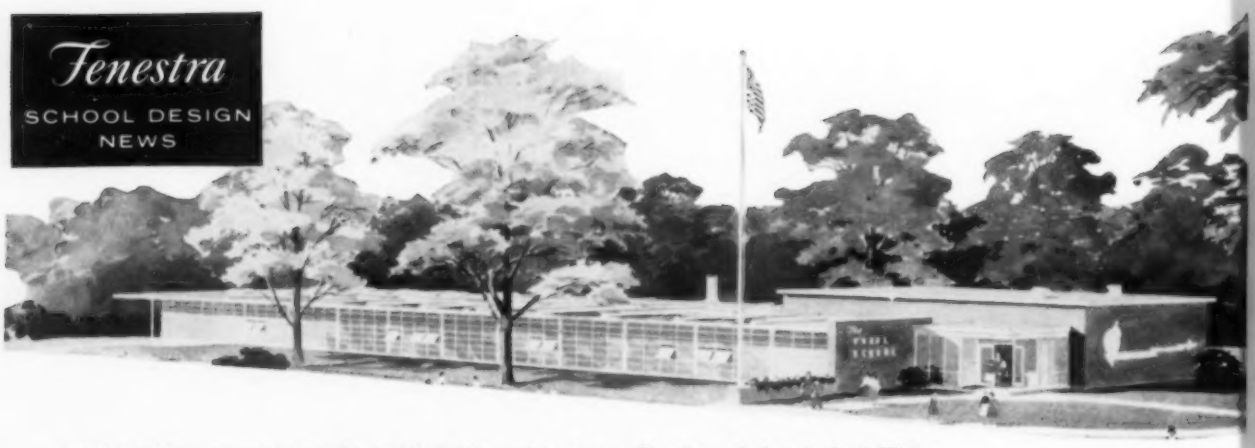
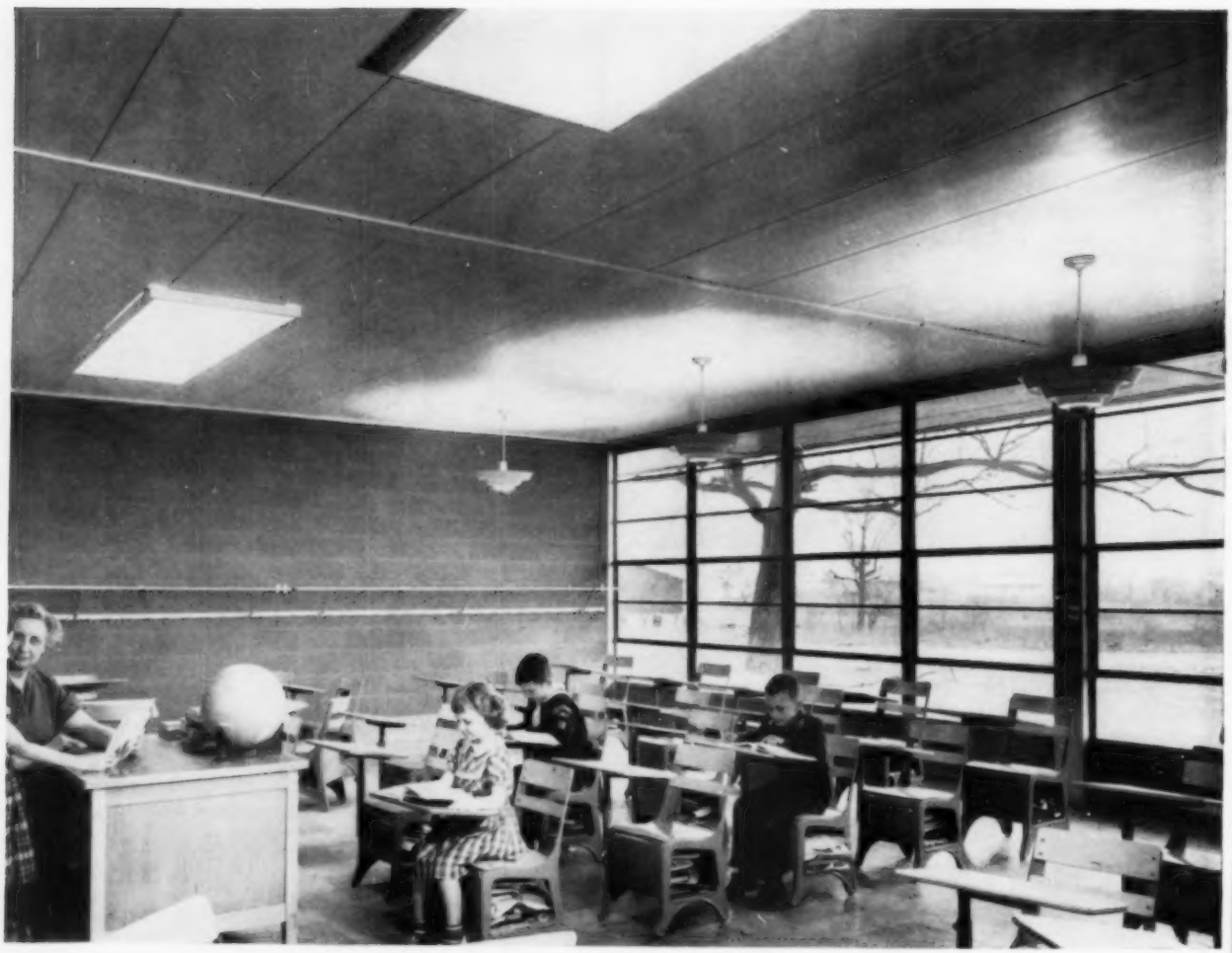
SCHOOL DESIGN
NEWS



The O'Neal Elementary School, Poplar Bluff, Missouri, is a recent Glen Drew designed school. With an area of 15,872 square feet, it cost $9.62 per square foot including all equipment, ready for occupancy. It was built for $3,000 less than the original estimates, a typical result of a Drew design.
Contractor—George A. Gassman Construction Company, Poplar Bluff, Missouri.

The metal pan acoustical ceiling of Fenestra Building Panels is shown in this classroom at O'Neal School. Acoustical material is "built in" the cellular panels and the bottom steel plate is perforated to absorb sound. Another typical Drew detail is the skylight frame containing fluorescent tubes and diffusing element that convert it into an economical lighting fixture. Skylights are 24" wide, same as the panels, which eliminates on-the-job cutting.



Architect

Glen Drew, AIA,

Poplar Bluff, Missouri,

designs with

Fenestra Building Panels to

CUT SCHOOL COSTS FROM FOUNDATION TO ROOF!

This construction photo of O'Neal School shows how Architect Drew uses the fast erection of Fenestra Building Panels and curtain walls of Fenestra Galvanized-Bonderized Steel Windows to close in a school quickly. This allows other trades to work "indoors". Contractors on Drew jobs can eliminate "down time" for weather as a contingency.

Attractive, livable schools, designed for community needs, that can be built and maintained economically, are a problem in most school districts.

Architect Glen Drew, Poplar Bluff, Missouri, has shown Southeastern Missouri school boards how to get the most out of their construction dollars. As a result of economy features conceived on his drafting board, Drew has been commissioned to design 21 of Missouri's most recent schools. They have been built in the $6.50 to $10.00 per square foot cost range including construction, mechanical equipment and trim.

Drew's use of modular design and unique arrangements of standard building products makes the contractor's job a simple one of rapid assembly. Starting at the top, he uses Fenestra* Acoustical Building Panels for the roof. These 24" wide cellular steel panels span up to 30 feet and combine the structural roof deck with a metal pan acoustical ceiling in one lightweight, quickly erected building unit. The five different materials required to duplicate this construction could not be bought and erected for the cost of this prefabricated modular unit. *Only one trade is required for installation!*

Maintenance costs are reduced, too. The ceiling may be washed or repainted whenever necessary, without affecting acoustical efficiency. It will never sag, fall or stain as will many applied acoustical materials.

By using Fenestra Building Panels to span interior masonry bearing walls, scarce structural steel can be reduced to a minimum. Plain panels may be combined with the acoustical panels for overhangs and other areas.

If you are looking for the key to low-cost, high-quality school design and construction, be sure to get the facts on Fenestra Building Panels, today. Call your local Fenestra Representative or mail the coupon below.

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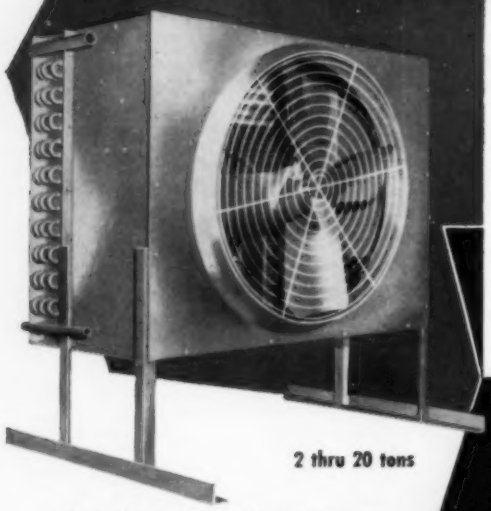

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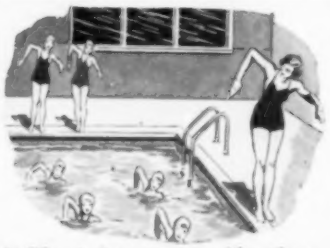

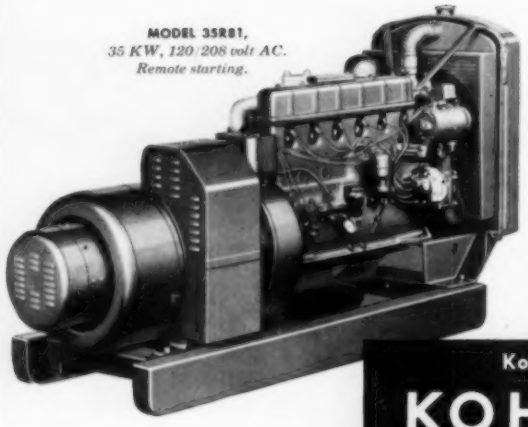

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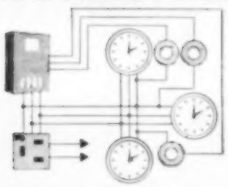

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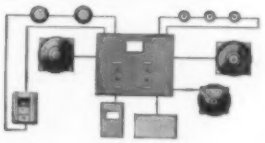

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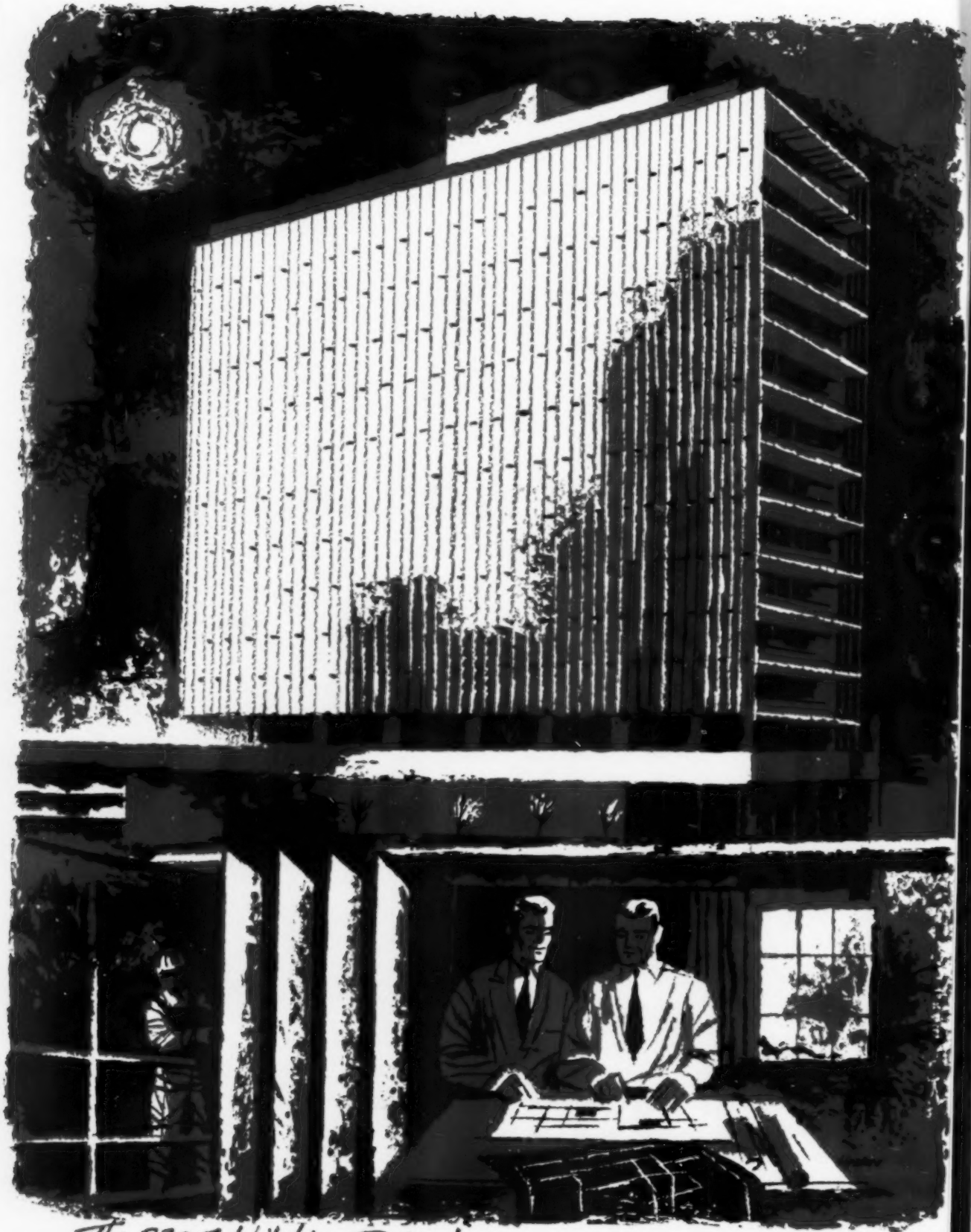

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ARCHITECT—Victor Gruen & Associates, Los Angeles, Calif.
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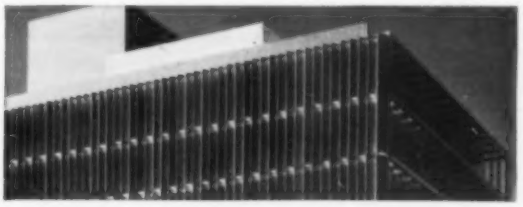

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(Continued from page 246)

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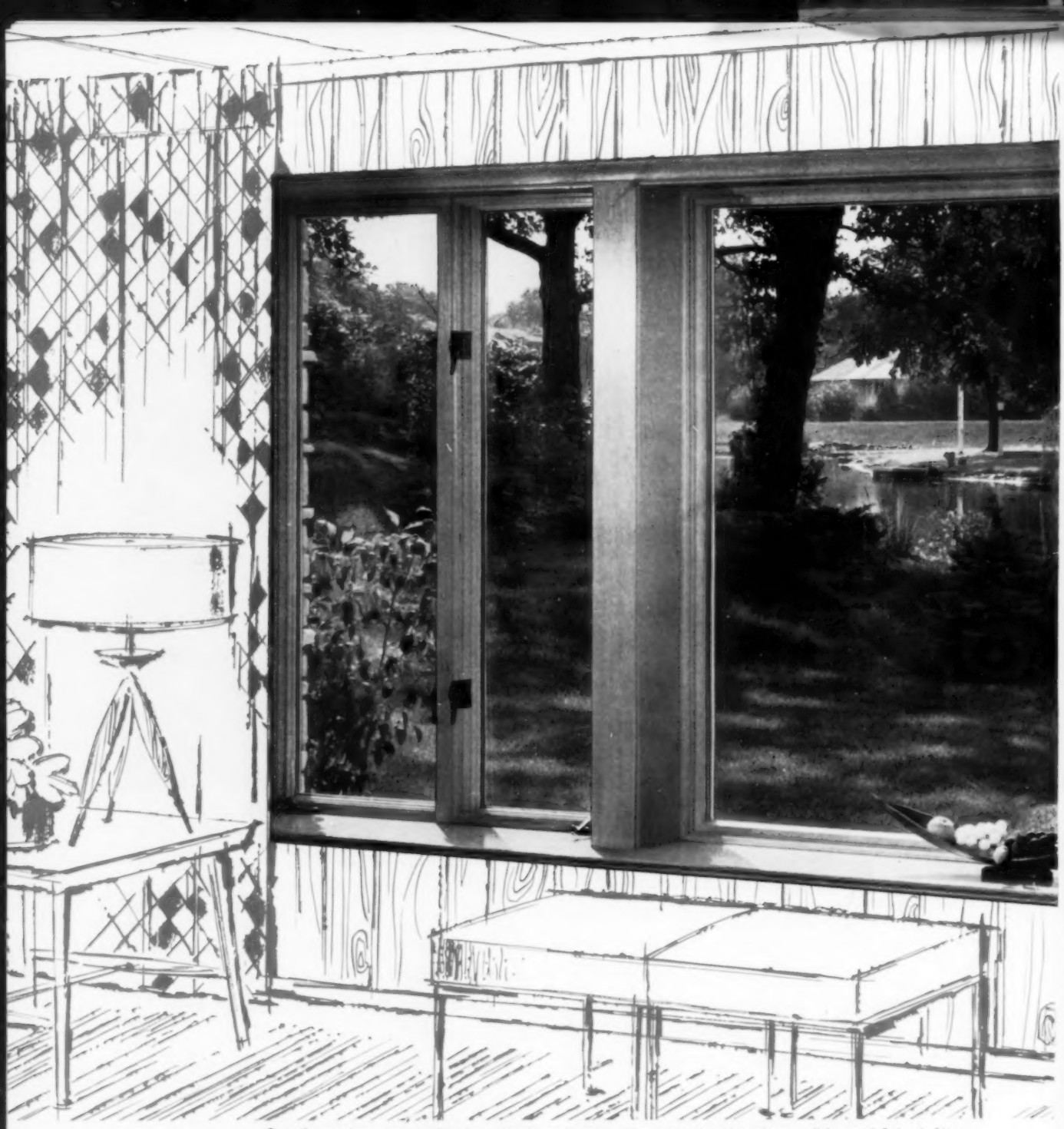

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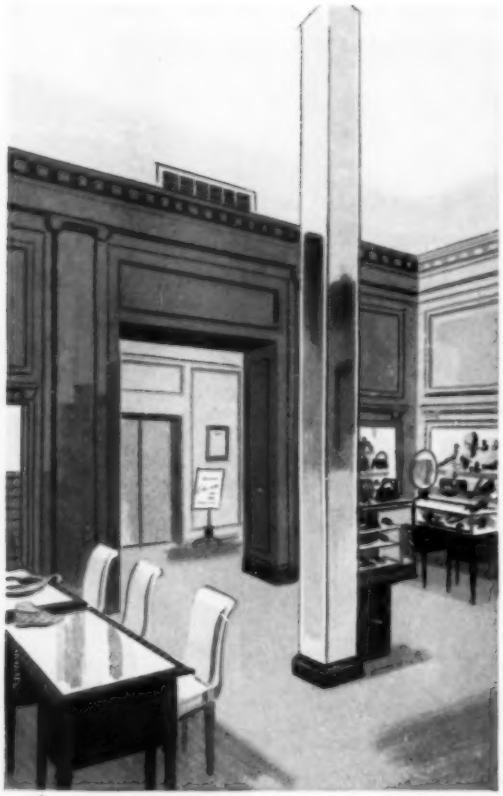

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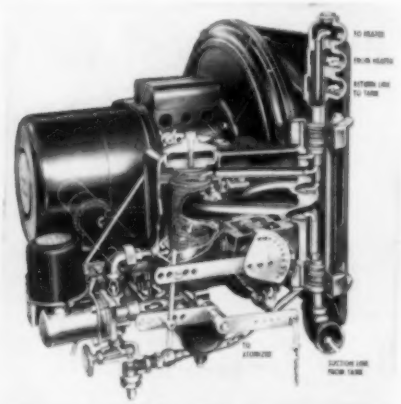

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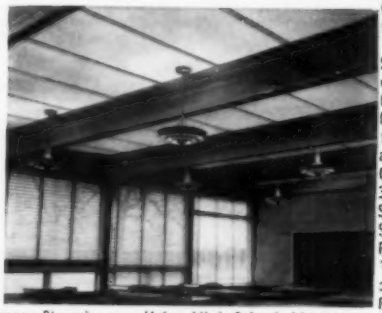

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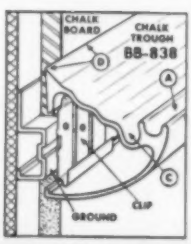

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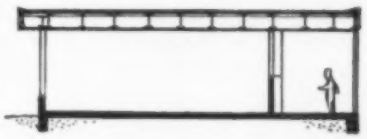

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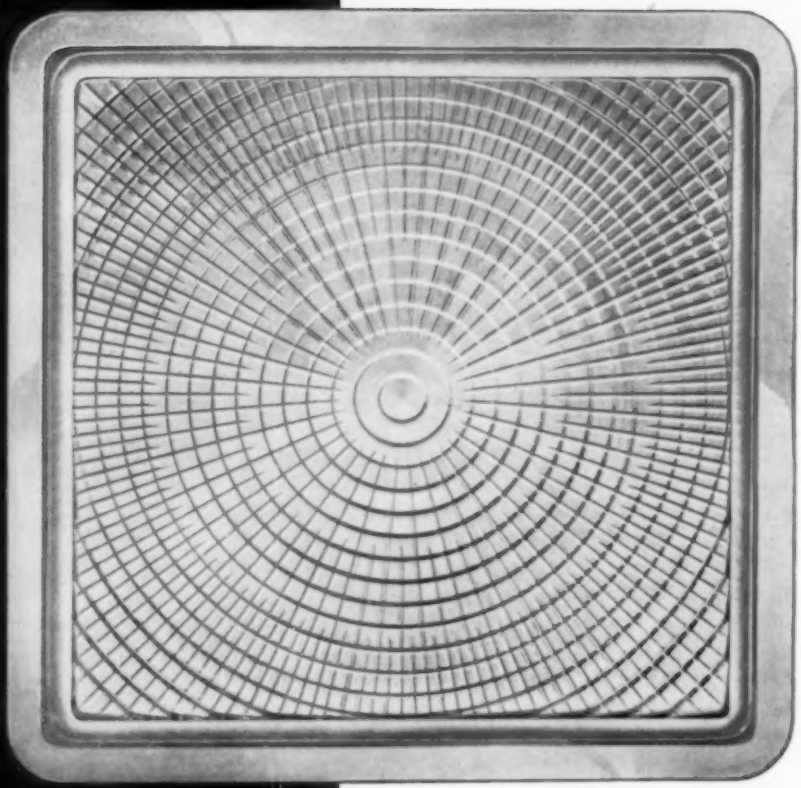

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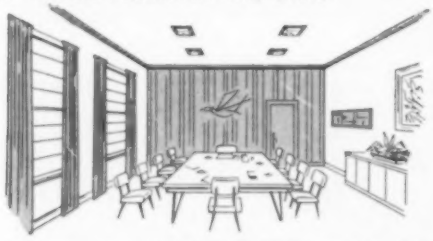

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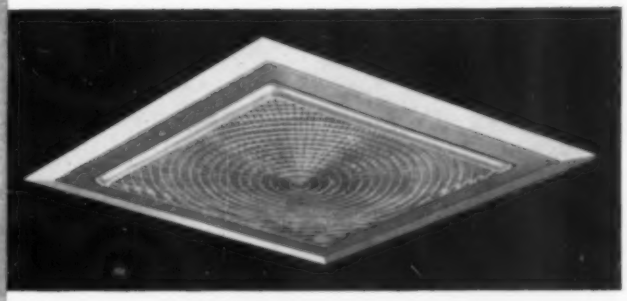

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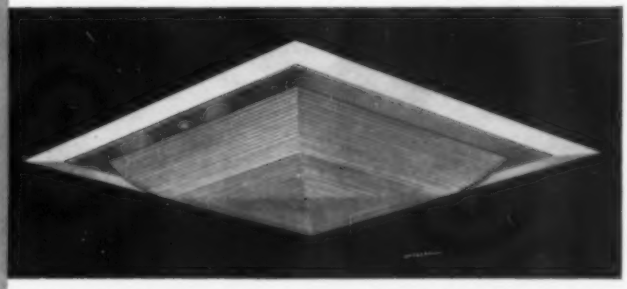

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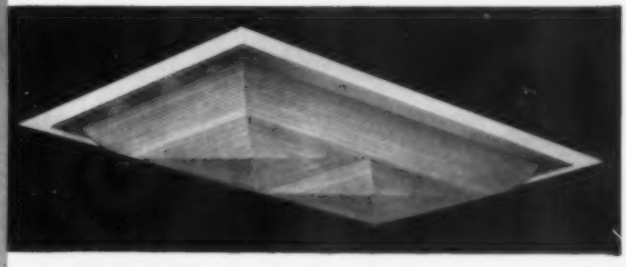

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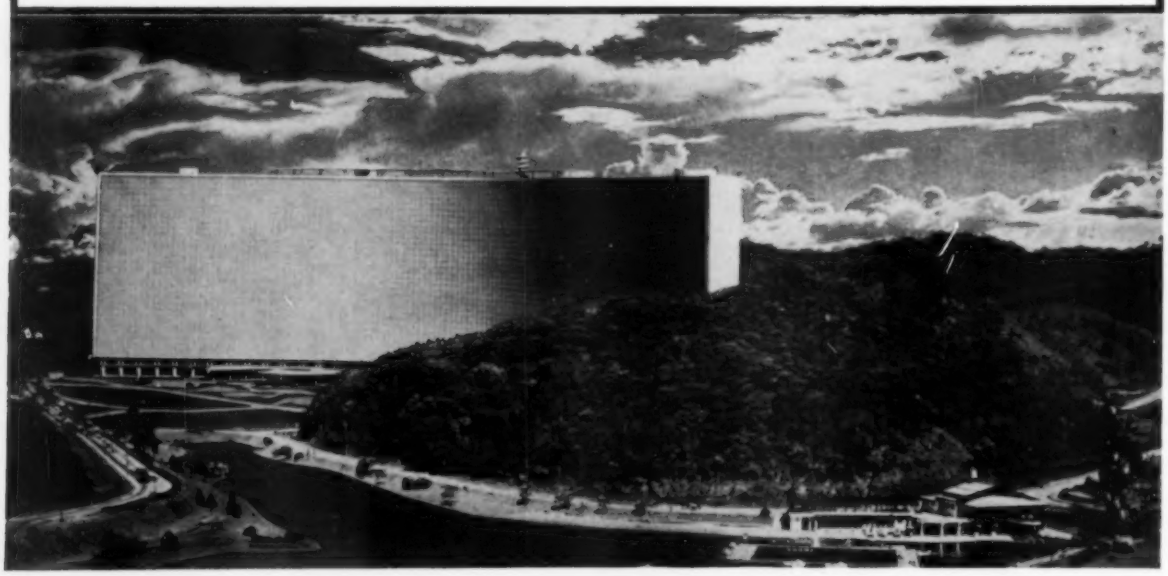

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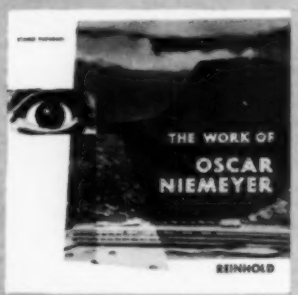

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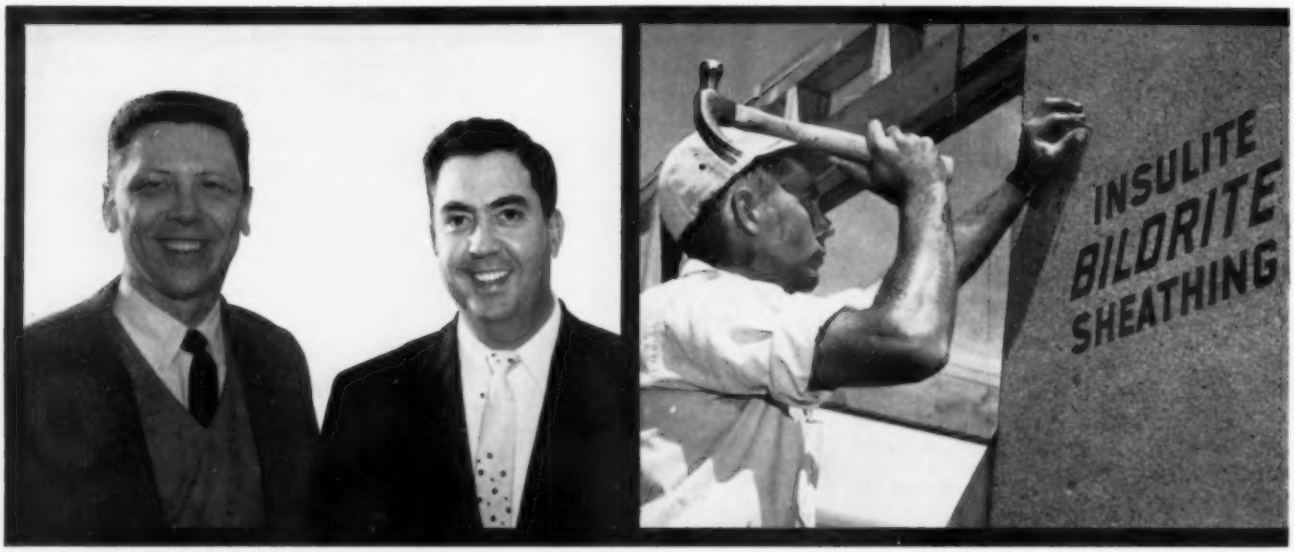

Smooth teamwork by architect and builder made this handsome Kansas City home an outstanding example of good design at moderate cost. Ward H. Haylett, Jr. (left) of Linscott, Kiene & Haylett, Kansas City, supervised the design job. Jed K. Giles (right) built and sold the home.

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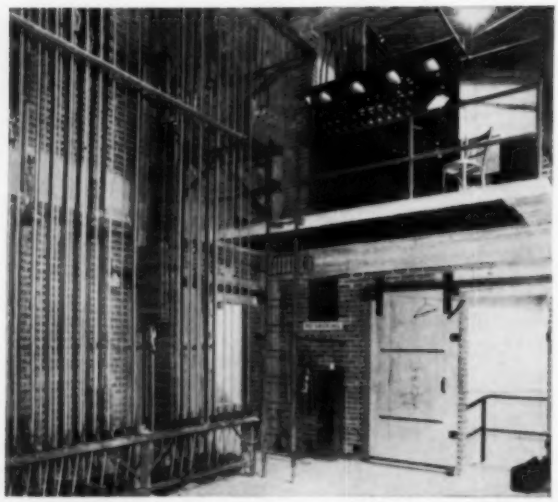

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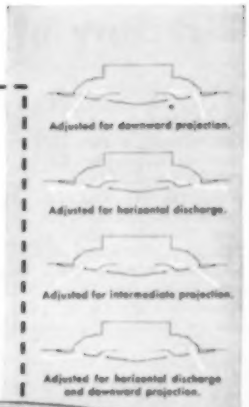
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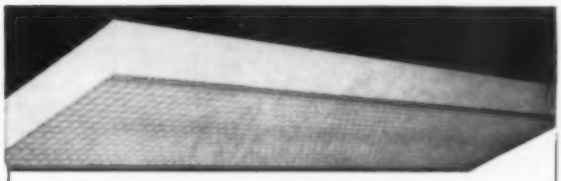

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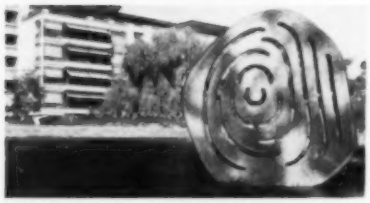

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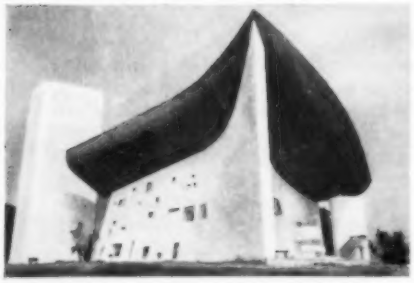

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P.S.

This month the AIA Convention takes place in Los Angeles, and as you read this issue, a number of P/A Editors are off with mixed feelings to that increasingly stupendous annual affair. We anticipate meeting many old and new friends, learning much of what is going on in the profession, seeing new masterpieces on our journeys to and fro, and losing sleep.

We know that there will be talks about the need for humanizing modern architecture, and papers on the need for more classrooms and more hospital beds. We know that the charming old gentleman from Tennessee will show up as soon as our room begins to dispense hospitality each day. We know that the annual resolution for democratic voting methods will be turned down, and that the annual resolution thanking the host chapter will be enthusiastically approved. We can anticipate the serious bull sessions on the need for more criticism in architecture, and the kidding between the teacher from Minnesota and the architect from San Francisco who meet once a year—in the P/A suite.

We know that there will be much discussion of public relations; that the students attending will be both awe-struck and critical; that Henry Saylor will be wandering through the lobby with a kindly twinkle in his eye; that there will be electioneering for minor offices, and swapping of votes; that some will be pleased about the Gold Medal selection and some disappointed; that the new Fellows will look proud and smug, and their wives even happier.

There will be discussion of competitions (getting nowhere) and of apprenticeship (getting somewhere at last!) There will be solicitation for some of the empty school positions. Some delegates will be ardent sightseers, others will never leave the hotel. The local people will sigh with relief when the week is over, and then discover that there are still stragglers needing to be entertained.

•

There: I've done my reporting this year a month ahead of time. That leaves next month's P.S. column open for a discussion of any important topic that may come up in the meantime—really vital things, like, for instance, this month's hot news that Bronzini, Ltd., manufacturer of men's neckties, has a big tie-in with architecture.

Bronzini had a press party, and we couldn't imagine why architectural editors were invited to a public relations affair given by a neckwear concern. Well, it seems that W. D. Blackwell, Bronzini's President and, according to the release material, a noted "designer of men's apparel," put on a steel-worker's helmet and went right up to Harrison & Abramowitz's Socony Mobil building in New York and, like the picture shows, made sketches of the stainless-steel curtain-wall panels. Then, from these, he designed a necktie, which must have been a very good thing promotion-wise, because of course the stainless-steel people liked the idea very much. So if you like the Socony Mobil panel design enough to carry it around on your neck, you can. I've seen both Max Abramowitz and Wally Harrison this last week, and each had on a plain-color, very sober necktie.

•

For a long time I have had on my desk a note to write something about the 25th anniversary of the Architect's Emergency Committee of New York, which occurred last December. I've hesitated, for one reason, because this is a local enterprise, and our readership is international in scope, but I think that by this time there are alumni of this institution scattered all over the world.

The name of the Committee, meaningless now (unless the emergency is lack of men instead of lack of jobs) had great meaning on December 8, 1930, when the situation was frightening enough to impel a group headed by Julian Clarence Levi to institute a sort of self-help information center. Its primary function through the years has been to put jobs and men together, although as Levi has said, "We are not conducting an employment agency. Better than that we are offering, without any remuneration, friendly co-operation to all who bring their problems to us. . . ."

Most of the problems have, of course, been job-seeking or personnel-seeking ones. By now many thousands of people have been placed, including many of the last war's veterans. A great number of today's successfully practicing architects benefited at one time or another over the years from the peppery, extremely personal ministrations of Lyda Nelson, who has been the working part of the Committee—its executive secretary—since the beginning. As the present Committee (composed of representatives from most of the architectural societies in the New York area, plus some engineering and landscape architectural groups and the Architects' Samples Corporation) points out, many of those now calling to find men were once hunting jobs. One thing has not changed: the Committee is still financed by voluntary contributions.

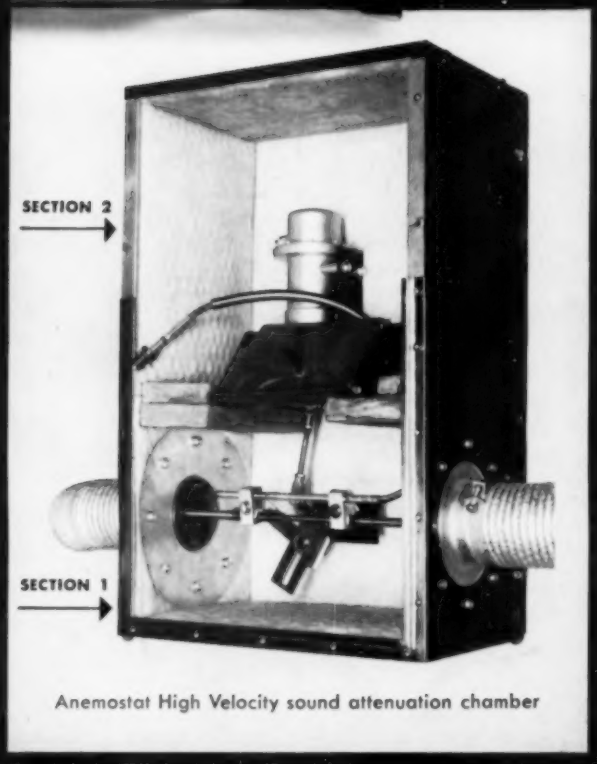
•

This issue is the fourth in our intermittent series of special studies of architectural design problems peculiar to the 20th Century. (Previous ones have been *Shopping Centers*, with Victor Gruen and Larry Smith as consultants, June 1952 P/A; *TV Stations*, with our guest editor on this issue, Walter Duschinsky, as advisor, September 1953 P/A; and *Air Terminal Buildings*, for which an impressive group of experts consulted with us, May 1953 P/A). It is interesting, though I'm not sure what it proves, to speculate on the fact that there are not many *entirely new* types of building that our time has produced. As a matter of fact, we pointed out in our *Shopping Centers* study that, while the regional merchandising center with surrounding parking facilities is a new development, the market place as such goes back to the beginning of social history; and the TV studio certainly has antecedents in amphitheaters and theaters of all ages.

The major design problems that we struggle with today are new translations of very old functions: the function of education, the function of health care, and so on. Perhaps because of this we often tend to be complacent about changes in *uses* of familiar types; the question "What's new about a church?" may obscure the fact that while ritual hasn't changed much, the church today also may be a working community center and an active educational institution.

That's why, I think, it's salutary to come up against factors entirely of our era causing change so intrusive as CELA. Telecommunications, electronics, and automation (at its higher levels) are incontrovertibly developments in our time; they are undeniably increasing in importance and use; their effect on architecture has scarcely been studied. I found working on this issue one of the most interesting jobs I've had in a long time. We hope you will feel that it is stimulating and we hope you'll let us know of examples of architecture affected by the CELA factors. We're sure it's a subject that we'll come back to, many times.

Thomas H. Creighton



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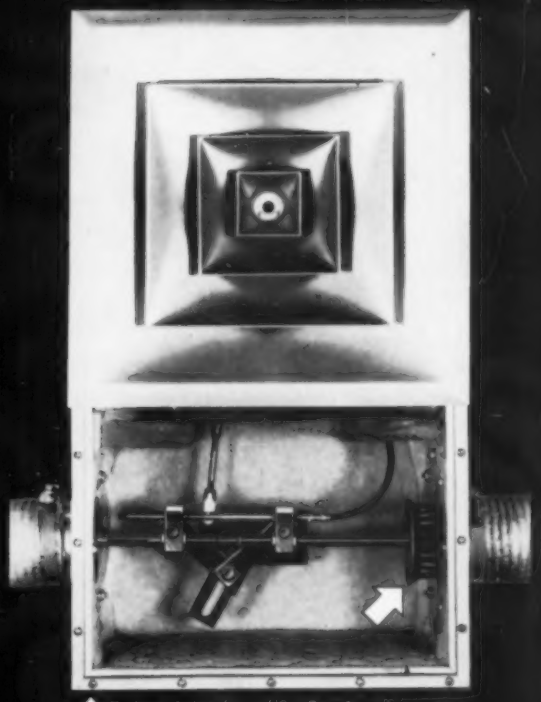

Hot inlet open in Section 1.
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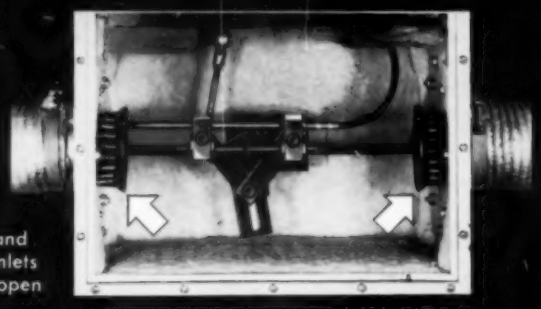
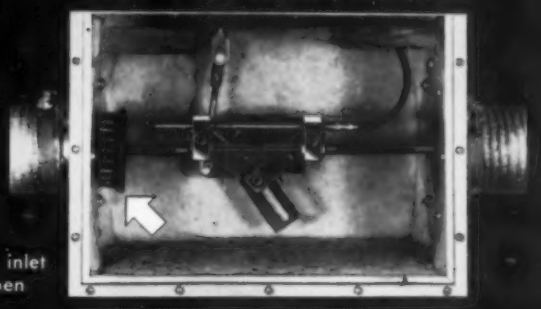


Hot and cold inlets 50% open



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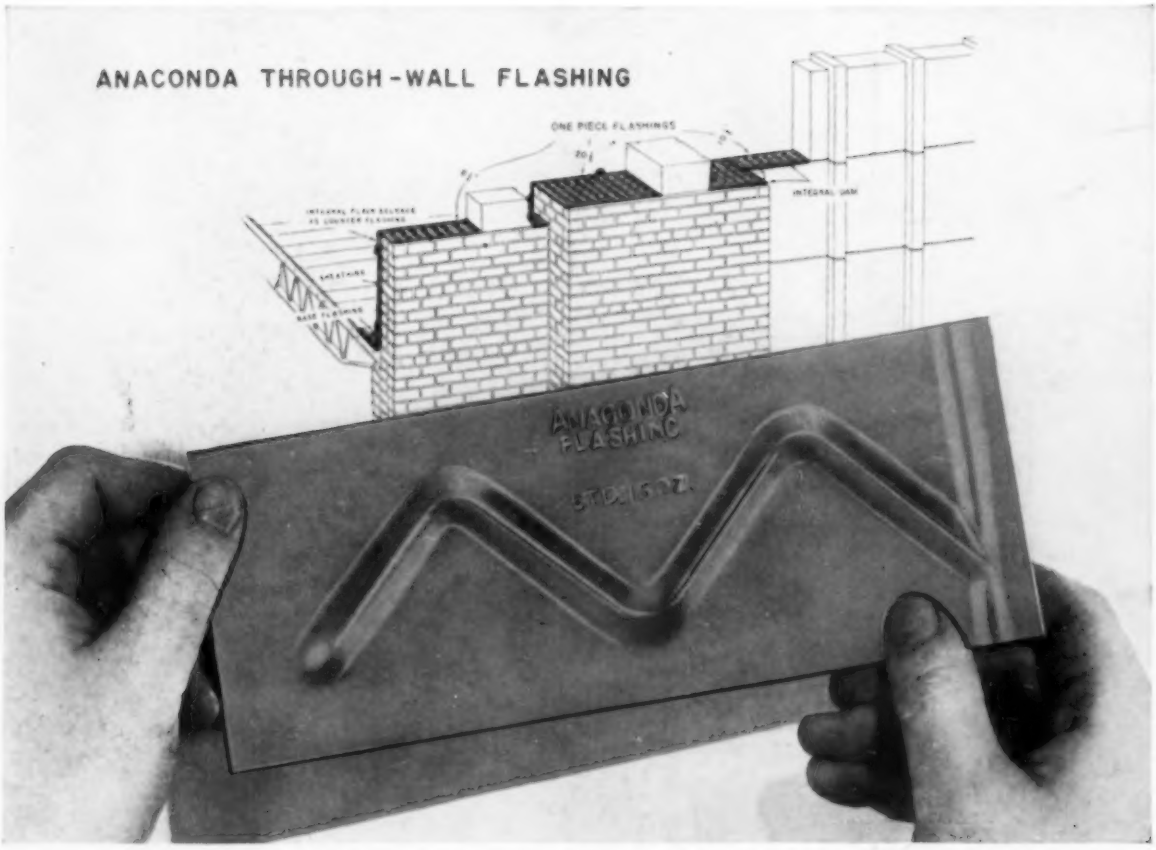

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A sample, in your hands, will show you why Anaconda Through-Wall Flashing is considered superior in design, efficiency, durability and installation economies.

See and Feel the Zigzag Corrugations. You'll see why the corrugations provide through-wall bond by keying with the mortar and offer maximum resistance to movement.

See and Feel the Integral Dam. You'll see that the dam and the corrugations are precision-stamped the same height – to prevent accumulated water flowing lengthwise of the flashing. This flashing *assures* drainage in the desired direction.

You'll be able to visualize better how the machine-stamped corrugations and integral dam form watertight end joints when adjoining lengths are overlapped one or two corrugations. And you'll appreciate that the stiffness imparted by the corrugations makes Anaconda Through-Wall Flashing the easiest to position accurately and fastest to install.

You get more protection with Anaconda Through-Wall Flashing. Send today for the sample and see why.

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